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ABSTRACT

The longitudinal "Competent Children" project is intended to discover what impact children's family resources and early childhood education experiences have on the development of children's cognitive, social, communicative, and problem-solving competencies. This report details findings of the first stage of the project. The report describes the competencies of 307 children in the Wellington region of New Zealand, in the context of their family background, home activities, the length of their early childhood education experience, and the quality of their current early childhood experience as they approach 5 years of age. More specifically, children's competencies are detailed in the context of: (1) constancy in their lives; (2) family resources; (3) their home activities; (4) patterns of early childhood education services (ECS); (5) the ECS resources, staff development, planning, assessment, and behavior rules; (6) children's experiences in early childhood services; and (7) ECS quality. The associations of children's competencies with home and ECES resources are also presented. The report examines the reasons why ECS resources seem to have different effects on different competencies, as well as why the considerable differences among family incomes were not associated with comparable differences in the quality of ECS attended by children from well-resourced and poorly resourced homes. One of the results noted in the report is that they approached 5 years of age, the majority of children were confident in their communication with others, could look after their own dressing and toileting, and solve problems in their exploration, games, and construction activities. Most were familiar with books and with numbers. Family income and mother's educational qualifications were most strongly associated with differences in levels of children's competencies. Girls tended to show more perseverance than boys, while boys tended to show more inquisitiveness than girls. Children's competencies were also affected by the length of their early childhood education experience, by the quality of their current early childhood education experience, and by the type and cost of such services. The report also discusses the implications of this research for policy makers, ECS practitioners, parents, and researchers. Contains 50 references. (AA)

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COMPETENT CHILDREN AT 5

FAMILIES AND EARLY EDUCATION

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FAMILIES AND EARLY EDUCATION

Cathy Wylie
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New Zealand Council for Educational Research
Wellington
1996

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EXECUTIVE SUMMARY

The aim of this project is to discover what impact children's family resources and early childhood education experiences have on the development of their cognitive, social, communicative, and problem-solving competencies. This report is from the first phase of the longitudinal project. It describes the competencies of 307 children in the Wellington region, in the context of their family background, home activities, the length of their early childhood education experience, and the quality of their current early childhood experience as they neared 5 years of age.

As they neared this age, the majority of children in this study were confident in their communication with others, could look after their own dressing and toileting, and solve problems in their exploration, games, and construction activities. Most were familiar with books, and knew how they should be read, even if they were yet to start reading. Around half could recognise the letters of their own name, and write their first name. Most children were familiar with numbers up to 10, whether in the form of counting or recognising numerals. Just under half could recognise different shapes.

Family income and mother's educational qualifications were the variables most strongly associated with differences in the levels of children's competencies. Children in the lowest income group, with family incomes of $20,000 or less, were 16 percentage points behind their peers in families with incomes of over $60,000 for our measure of Early Mathematics, 13 percentage points for our measure of Early Literacy, 12 percentage points behind for our measure of Social Skills with Peers and at least 7 percentage points for other social skill areas and Communication Skills. The association with mother's educational qualifications showed a similar pattern.

Levels of competence were unaffected by mother's current employment. Children from sole-parent homes were behind children from 2-parent homes on only the Communication competency, despite the fact that most sole-parent families were in the lowest income group.

While girls tended to show more perseverance, boys showed more inquisitiveness. These dispositions were the only measures which displayed statistical differences associated with gender.

We found no differences in children's competency levels associated with differences in children's overall health. However, children who had a severe hearing problem lagged behind those who had no hearing problems detected, or those who had had hearing problems corrected on our Early Literacy measure.

Children who engaged in a range of number activities and writing activities at home showed higher average scores of relevant home-experiences on cognitive competencies and motor skills than children with a smaller range.

We found that children from low-income homes, or homes with low parental educational qualifications (the two overlapped), were less likely to engage in activities involving reading, writing, or number, and had a narrower range of family activities. Also these children had fewer material resources—such as computers—available to them. The Early Literacy competency scores of children in families which owned a computer was 9 percentage points above those in families without a computer, and Motor Skills were also affected in both cases—even after family income was taken into account.

Children's competencies were also affected by the length of their early childhood education experience (more was better for Early Mathematics and Motor Skills), by the quality of their current early childhood education, the type of early childhood education service they attended, and the cost

to their family of that service. These associations remained even after taking family income into account.

The quality of early childhood education services (ECSs) chosen was found to be related to:

- whether the staff held an early childhood education qualification,
- the highest staff salary paid,
- the children to staff ratio,
- group size, and
- the ECS type.

Each ECS type was a distinct mixture of different structural aspects of quality. It was rare to find an ECS where all the structural elements associated with high quality in the research literature—properly qualified teaching staff, ratio, and overall group size—supported one another. More often, where one aspect of quality existed, it would not be supported by others, and indeed could be undercut. Thus, for example, well qualified staff in kindergartens are having to make up for large group size and poor ratios; Family Day Care caregivers have good ratios and group size, but often lack the training to put these to good effect. Staff training, with educational activities and equipment, seemed able to compensate to some extent for poor ratios and group size—but not the reverse. Sessional ECS types tended to provide higher-quality early childhood educational experience than full-day ECSs.

Children in ECSs with low quality ratings were less likely than others to engage in exploration, more sophisticated levels of play, or to have their language extended in interaction with adults. There was more aggressive behaviour in low-quality ECS.

However, the levels of aggressive behaviour and negative adult tone were low in our observations of the ECSs in the study. Over all, the quality of ECSs at the 4-year-old level appears better than that found recently for infant and toddler childcare (Smith, 1995), and better and less varied in quality than reported recently for the United States (Helburn, 1995). Yet there is considerable room for improvement. Twenty-four percent of our ECS ratings showed that a very low-quality early childhood educational experience was being offered. Half the ECS ratings showed experience of an adequate or better quality, but none showed very high quality.

Children's access to good-quality ECSs was not decided on the basis of their family income, however. This is a partial reflection of the higher use of full-day ECSs (which were more likely to be rated as low quality) by higher-income families, where both parents or the sole parent were employed. Equitable access to better quality services is a deeper reflection of previous government policy support for ECSs in the form of an emphasis on training and qualifications, regulations (e.g., on ratios and group size), and supplying most government funding directly to services rather than by individual entitlement.

We also confirmed the findings of other studies that parents' perceptions of ECS quality do not match researchers' evaluations. This may indicate the actual choice of ECSs available to parents, but it also raises questions about how decisive a role should be given to parental perceptions in the setting of early childhood education policy. If the allocation of public money was solely on the basis of parental choice, the taxpayer would often be supporting ECSs of inadequate quality.

The role of ECSs in supporting families is also shown in this study. Indeed, ECSs contribute to family resources by facilitating parental employment, and by providing parents with engagement in activities with other adults as well as with children, which develop their own skills, confidence, and knowledge.

ECSs therefore contribute both directly and indirectly to children's competency levels near the age of 5. To some extent ECSs and home resources play complementary roles with regard to children's competency levels, but they are not totally separable. ECS experience appears to nourish children's social, communicative, and problem-solving competencies in particular, while family resources may be more important for children's cognitive competencies, as well as their social skills. Home activities are also associated with higher levels of cognitive competencies.

The main policy implications of this research are that:

- ◘ Good-quality ECSs benefit all children. The key aspects of good quality are that staff should be appropriately trained and qualified; reasonably paid; with overall group sizes and adult to children ratios which allow interaction with adults to extend children.

- ◘ The quality of ECSs in New Zealand is variable, and shows room for improvement. Different ECS types have different needs, and therefore different solutions are called for, rather than a uniform approach.

- ◘ Children's access to good-quality ECSs in New Zealand is better than in the United States, indicating that funding services directly rather than relying on targeted parental subsidies or tax-rebates is a more effective policy direction to ensure equitable access for children from homes with different incomes.

- ◘ The difference between some parental perceptions of ECS quality and research-based evaluation, and the lack of correlation between cost to parents and ECS quality, indicates that parental choice should not be the foundation for ECS policy, for service provision, or for service improvement.

- ◘ Improving children's level of cognitive competencies, and reducing the large gaps shown for children from low-income homes and others, could be addressed in 3 ways, none of them unproblematic:

  (1) To reduce the gap between low-income homes and others, a redistribution of tax income—possibly with a change to a more progressive tax system—and changes to policies to lower housing and health costs.

  (2) A sustained campaign using public media, education, and community groups, to encourage more mathematics and writing activities in the home. Parent education is, however, a notoriously difficult area, and some imaginative initiatives would be needed.

  (3) A greater emphasis on literacy and mathematical experiences in ECSs, if this can be done in ways which are appropriate for children of this age, and can be done without undermining the real contribution to young New Zealand children's communicative, perseverance, and social skills which this study has shown ECSs to be making.

CHAPTER 1

INTRODUCTION

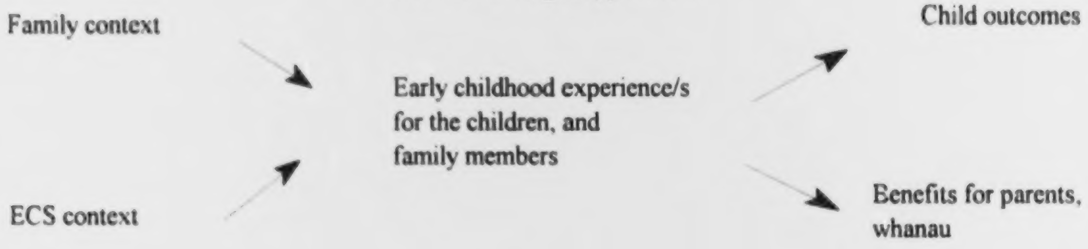
Background

This is the second substantial report of findings from the longitudinal Competent Children project funded by the Ministry of Education and NZCER.[1] It is not just the longitudinal nature of this study which makes it ambitious. It is one of the few studies of the effects of early childhood education which gathers data from both home and early childhood services (ECSs), and from teacher, parent, and child. Unlike many overseas studies, it has also included most options in the range of ECSs locally available, rather than concentrating on only one type. This enables us to provide a fuller picture of the quality of New Zealand ECSs, albeit adding to the complexity of analysis.

In addition, we have grasped the nettle of endeavouring to find valid and reliable assessment of children's competencies at the age of 5. We believe the set of competencies which we developed for this study reflect the new early childhood curriculum guidelines, Te Whāriki, and the sorts of skills and awareness which are valued by New Zealanders. This has involved some pioneering work in defining a range of competencies and developing instruments to measure them which were neither time consuming nor expensive to administer.

Some early childhood education is almost universal in New Zealand now. By early childhood education, we mean education experiences outside the parental home before the start of formal schooling, under the responsibility of people other than the child's parents, in the company of other children. This is a complex set of arrangements and experiences to research. Only 30 percent of the 307 children in the first phase of our study experienced only one ECS. The complexity of arrangements, whether sequential or concurrent, is striking. This diversity reflects children's reality. Their experiences cannot be understood without considering their family's circumstances, resources, and activities. Thus, our working hypothesis has been that both home and early childhood education experiences contribute to the development of children's competencies.

Figure 1
Research Design Hypothesis


Family context
ECS context
Early childhood experience/s for the children, and family members
Child outcomes
Benefits for parents, whanau

---

[1] The first was the report on the schema development sub-study, *Thinking Children*, by Anne Meade and Pam Cubey (NZCER 1995).

Though graphically these experiences are separate, they do not occur in different compartments in real life. We are keen to illuminate and analyse the **interaction** between family circumstances or resources, and children's ECS experience.

There is one missing ingredient in our hypothesis—children's original temperament (Scarr & Eisenberg, 1993). Although we have gathered some descriptive data on children's temperament, we did not feel able to gauge and measure properly what is a complex area, difficult to differentiate from children's competencies, or to assign clearly to a single category.

This framework for our study translates into the following set of research questions. The research questions fall into 2 groupings. The first is clearly focused on the influence of early childhood experiences. Our association with the Smithfield project, a longitudinal study focusing on school choice in the context of family and school resources, beginning with children in their final year of primary school,[2] is reflected in the second set of questions. When this project began, it was intended that children in it would form a second cohort for that study when they reached the age of 11.

Influences of Early Childhood Education Experiences

1. How does the nature and extent of young children's early childhood educational experiences in the Wellington region produce short-, medium-, and long-term effects—

    - on what the children can do (i.e., on their social, communicative, cognitive/learning, and physical competencies); and
    - on their participation in education?

2. Can early childhood education experiences temper the influences of family backgrounds on children's competence (positively or negatively)?

3. What is it about the nature of different early childhood education experiences in the Wellington region—

    - structural variables (group size, staff: child ratio, staff training),
    - service type,
    - curriculum goals and approaches,
    - adult-child interactions,
    - staff-parent, whanau communication, and parent, whanau involvement,
    - stability of early childhood care and education, including multiple use—

    which affects the development of children's competencies? Of these, which have the greatest or longest impact?

4. What effect do family characteristics—

    - family income,
    - mother's education,

---

[2] Two reports of the study's findings are available from the Ministry of Education's Research Section:
Lauder *et al.* (1994) *The Creation of Market Competition for Education in New Zealand*, and
Lauder *et al.* (1995) *Trading in Futures: The Nature of Choice in Educational Markets in New Zealand.*

- ethnicity,
- family type,
- family activities—

have on the development of children's competencies?

5. What effect does children's health have on the development of children's competencies?

Choice

1. What factors affect parents' choice of ECSs and schools for their children in the Wellington region?
2. Do parents and whanau from different backgrounds use ECSs differently?
3. Are parents/whanau making long-term provision for their children's education, given the recent changes in policies for funding education?

This report describes the family characteristics, circumstances, and activities of our 307 children whom we first met when they were nearing 5 years of age, and whom we hope to follow through until they reach late adolescence. While there have been 2 longitudinal studies in New Zealand which have included some information on the type and/or duration of children's ECS experience (Fergusson, Horwood, & Lynskey, 1994; Silva, McGee, Thomas, & Williams, 1982), this is the first New Zealand longitudinal study to focus on ECS experience, in the context of the *quality* of that experience as well in the context of family characteristics.

The first chapter of this report focuses on children's competencies in the 10 areas we studied. Chapters 3 to 5 describe the family circumstances and resources of the children in the study. Chapters 6 to 8 outline the children's ECS attendance and experience. Chapter 9 describes the quality of the ECS attended by the study children in their last year before going to school, and analyses the statistical associations between the quality ratings of the study ECS and structural variables such as group size and level of staff training, and the statistical associations between the quality ratings and family characteristics.

Chapter 10 reports the main findings of the statistical analysis of the association between family characteristics, parental participation, and satisfaction with their child's ECS, the quality of the ECS, and the level of the children's competencies examined in the study.[3] We conclude by assessing how well our descriptions and analysis answer the original research questions, and discuss the importance of the findings.

The rest of this introduction outlines the design of the study, the research instruments, sample, and analysis.

Outline of the Study

Figure 2 sets out the history of the project and the articulation of the 3 streams within it.

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[3] The details of that analysis are available in a separate volume of technical appendices, available on request from NZCER. Also covered in that volume are ECS staff expectations of children's competencies and the development and validation of the study instruments.

Figure 2

Competent Children Project Outline

Year	Intensive Study	Light Survey	Schema Study
1992	**Pilot study** - phase 1 19 children 6 ECSs (1 of each of ECS types in study, 2 playcentres (rural/urban)) 7 research instruments Survey to establish extent of non ECS usage in Porirua Basin		
1993-1994	**Field work** - phase 1 307 children 87 ECSs 6 instruments (child, main caregiver, ECS)	**Field work** - near-5-year-olds 798 children 56 ECSs 2 instruments (main caregiver, ECS)	**Field work** - near-5-year-olds 18 children 4 ECSs 6 instruments Samples & Records (child, main caregiver, ECS)
	Pilot study - 6-year phase 16 children 10 schools		
	Reports:	Initial ECS usage, school choice, and tertiary saving reported to Min Ed	
	Competency, quality frequencies reported to Min Ed; study participants (seminars & posted summary)		
1995	**Field work** - phase 2 298 children 122 schools 330 teachers	Brief postal contact	
	Conference papers: Early Childhood Education Quality, Family Resources, and Children's Competencies at age 5 Early Childhood Education Services: What Works for Parents?		**Book:** *Thinking Children*
1996	**Reports:** Phase 1 - Concurrent associations **This report Phase 2 - Concurrent and enduring associations **To come		

current funding ends

if funding continues:

1996–7	Field work-	8-year-olds
1998–9	---	10-year-olds
2000–01	---	12-year-olds
2002–3	---	14-year-olds
2004–5	---	18-year-olds

Instruments Used in Phase 1—The Children Near Age 5

These are to be found in appendix 1.
Intensive: 307 children, 87 ECSs, data gathered October 1993 - August 1994

1. **Child Observation Schedule:**
The 307 sample children were observed 5 times on at least 3 occasions a week or so apart, a total of 15 observations or more for each child. The observations lasted 1 minute, at intervals of 20–30 minutes. The child's interaction, or lack of it, with other children and with adults (excluding the field worker) was recorded, together with their level of play, any exploration of materials or language, any aggression, and any language extension in child-adult interaction. A brief description of the context, usually including activity, behaviour, and language was also made.

   This instrument yields information about individual children's ECS experience, including their social skills with peers and adults.

2. **Centre/Service Rating Scale:**
Each of the 87 ECSs with children in the study was rated at least 3 times, on the same visits as children were observed. There are 4 subscales in the rating: staff-child interaction; self-esteem; programme/activity focus; and physical environment, resources, and safety. Each item within the subscales was given a rating between 1 (never occurring, *or* not at all like this centre) and 5 (always, *or* very much like this centre). Each subscale has an overall rating over 5 or 6 items. There is also an overall rating for each visit.

   Much care was taken in the design of this scale to ensure that it was applicable to all the ECS types in the study.

   Material was also collected on structural variables of ECS quality such as group size and staff: child ratios.

3. **Adult Perceptions of Children's Competency:**
ECS teachers of the study children rated each child's competencies along these dimensions: Inquisitiveness and Perseverance, Social-Emotional (Independence, Relations with peers, Relations with adults), Communication (Receptive and Expressive). They also rated their relationship with the child's parents, and most gave their overall impression of the child.

   This instrument yields material on several of the children's competencies; it also provides material on relations between the ECS and parents.

4. **Children's Interview and Tasks:**
The study children were given a number of tasks to assess their competencies in these areas: social problem-solving, mathematics, motor skills (gross and fine), literacy, and logical problem-solving. They also told the field workers what ECS activities they liked most and least, what help they gave at the ECS, and what they did if they had difficulty making something.

5. **Centre Profile:**
ECS supervisors and head teachers provided information about staffing (numbers, stability, salary, education, ECS experience, training, existence of employment contract) and the centre's

programme. They also provided summary information on the socioeconomic and ethnic profile of children attending, their roll stability, roll numbers, and roll capacity.

6. **Main Caregiver Interview:**
   A structured face-to-face interview was held with the main caregivers for each of the study children. This provides information about their ECS experience, home activities, the family, parents' occupations and school qualifications, school choice, and child's health.

Sample

In an ideal world, where funding research was not a problem, this study would have been carried out nationwide. Originally, it was our intention—or hope—to match such a goal by having rolling samples taken in different geographic regions one year after the other. The rapidly changing policy environment for early childhood, as well as funding, precluded this. It was then decided to concentrate on the Wellington region, as far north as Otaki on the west coast and as far north as Eketahuna on the eastern side of the North Island. This region was not unrepresentative in census terms of New Zealand as a whole when the study began.

Because we were gathering data on both home and ECSs, it was also financially prohibitive to meet and select our sample by random approaches to households, as used in surveys of ECS use. It was decided to find our sample children through the ECS.

We had thought of sampling ECSs on the basis of roll numbers. Had we done so, then this study would have concentrated almost solely on kindergartens, since that is where most 4½-year-olds can be found, once kohanga reo are excluded. At the start of our study, we hoped that a parallel study to this could be carried out by the Kohanga Reo National Trust; but unfortunately funding has not been found for that work.

If we wanted to include children with different ECS experience, as should be done, given the different types of ECS available to parents, then we would have to choose a sample stratified to get equal numbers of different ECS types (assuming these offer different ECS experiences), rather than a sample stratified by proportion of type attended by children in the age group in the region. We therefore decided to select equal numbers of children attending kindergarten, playcentre, those centres categorised as childcare centres by the Ministry of Education, and Family Day Care (or "home care"). The Ministry of Education also asked us to include all licensed Pacific Island ECS centres in the Wellington region.

The Ministry of Education's data management section drew up a list of the ECS centres in the Wellington region, excluding all centres which had rolls of fewer than six 4-year-olds. Two samples were generated: in each sample the population size at the centres was used to weight the sample. Thus, centres with large numbers of 4-year-olds were more likely to be selected than others, within each ECS type. Nineteen centres were randomly selected for each of the 4 types. This process meant that some centres were selected twice on the same list or appeared in both random lists. If they did, then our sample size at the centre doubled. Concern for costs meant that we excluded ECSs that were at the edge of our geographical range.

The selection process was first to approach centres on the first list, and if they did not have the population we needed—at least for 4½- to 5-year-olds at the time of our field work, to approach the first centre type on the second list and so on. We found that quite a few of the centres on the list were not in fact eligible, i.e., did not have at least 3 children in the age group, as the table below shows.

Table 1

Approaches to Early Childhood Services in Random Sample

Type of centre	Participated in project		Ineligible		Refused		Total approached
	N	% of type	N	% of type	N	% of type	N
Kindergarten	19	61	0	0	12	39	31
Playcentre	20	49	19	46	2	5	41
Childcare	20	44	16	36	9	20	45
Family Day Care Programmes	14	47	12	40	4	13	30
A'oga Amata	3	100	0	0	0	0	3
Cook Islands ECS	–	0	1	100	0	0	1
Total ECSs (including 25 FDC services from the 14 programmes)	76		48		27		151

Note: 3 kindergartens, 6 playcentres, 2 childcare centres, and 5 Family Day Care programmes (with different carers each time) were drawn twice in the sampling. Twenty-five individual Family Day Care homes participated in the study. The category "childcare" includes sessional centres which catered primarily for 4-year-olds, and these we have described in the report and analysis as private preschools.

Some of our randomly selected centres were also too busy at the time of our approach to participate in the research. They were often busy with staff development, some related to the new curriculum, or were experiencing changes in staff.

Just before we embarked on our research, there was a change to the childcare subsidy policy, tying it to training or work on the part of the caregiver and making the lower limit 9 hours. This did have an impact on a number of children in Family Day Care schemes. Indeed, we found it impossible to reach our target of 75 children in Family Day Care. There was simply not this number to be found in the Wellington region, even after we extended our sample to include *all* 4½- to 5-year-olds in the regional Barnardo's schemes. There was also a higher rate of refusal from parents and caregivers in these schemes.

Table 2

Parent/caregiver Consents by Type and Sample Size

Type	Population	Approached	Accepted	Ineligible	Refused	Withdrew
Kindergarten	185	113	91	7	13	2
Playcentre	108	98	91	4	5	1
Childcare	167	111	90	17	9	6
Family Day Care	64	58	25	8	**26**	4
A'oga Amata	19	16	10	3	1	3
Total	543	396	307	39	54	16

Note: Figures in bold in the report tables highlight proportions which are the highest or lowest in a given group of characteristics.

Towards the end of our initial round of approaches (at the end of 1993) we therefore decided to aim for equal numbers of children in kindergarten, playcentres and childcare centres, and total populations

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of Family Day Care and Pacific Island ECS centres. The number of Pacific Island ECS centres in the region which had licences was unclear at the time we embarked on our research: several centres which were expected to have been licensed in time for our field-work phase did not eventuate. Therefore our sample of this ECS type is only of those which were licensed and had sufficient numbers of near-5-year-olds. These were all A'oga Amata (Samoan).

Table 3

Study Children by ECS Type and Gender

Type of centre	Males	Females	Total	Sample %
Kindergarten	46	45	91	30
Playcentre	44	47	91	30
Childcare	58	32	90	29
Family Day Care	15	10	25	8
A'oga Amata	4	6	10	3
Total	167	140	307	100

Note: Boys outnumber girls in the sample – boys = 54 percent, girls = 46 percent. The Ministry of Education reports a ratio of 105 boys for every 100 girls for all ages up to 18 years based on fertility levels; our sample fits within 95 percent confidence intervals for the population.

Our aim was to have sufficient numbers of ECS types (representing different experiences) and children to give us sufficient data on quality, family resources, and children's competencies so that we could describe, analyse, and explicate the relationships which existed between these 3 aspects of children's experience and resources.

The final sample depended on both the eligibility of the centres selected in our random sampling process, and then on caregiver, staff, and/or parental willingness to participate. On 3 comparisons we find that our sample of parents differs from that of the population at large. Our families had higher incomes than the population at large.[4] They had more women in the paid workforce, including sole parents (53 percent in this study compared with 87 percent in the 1991 census).[5]

Our inclusion of families from different ethnic backgrounds also overrepresents Pakeha/European in comparison to other ethnic groups. The number of Maori (31) and Pacific Island (21) children in the study permits their use for statistical analysis, but our counts for Asian children (12) and those from continental Europe (10) are generally too small, and so, for the most part, separate data for these groups are not reported.

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[4] The income figures given in the 1993 NRB national random sample survey of caregivers of children under 5 show 19 percent with a "high" family income ($50,001 or more), 30 percent in a bracket defined as medium ($25,001–$50,000) and 42 percent in the low income bracket ($25,000 or less) (NRB, 1993, p. 12). The income distribution for our intensive study is 39 percent with family incomes of more than $50,000, 30 percent in the mid-income bracket, and 21 percent in the low-income bracket as described in the NRB national sample.

[5] The 1991 census data (Davey & Callister, 1994) shows 48 percent of women in 2-parent families not in paid work, compared with 39 percent in ours. We have higher numbers of women in 2-parent families working part time: 37 percent, compared with 23 percent in the 1991 census. Our proportion of 2-parent families where both parents are working is comparable: 18 percent, and 16 percent in the 1991 census. We have fewer families where both partners are unemployed: 3 percent, compared with the census figure of 14 percent. Twenty-three percent of the sole-parent mothers in our study were working full time, compared with 7 percent in the 1991 census, and 24 percent were working part time compared with 6 percent in the 1991 census. The proportion of partners of mothers with preschool children working full-time is comparable: 90 percent in the 1991 census, 86 percent for our study.

The Analysis

In this study we have concentrated on the quantitative presentation of our data. Cross tabulation has been used to describe the data, and the relations between children's competencies, family resources, and ECS quality; and our investigation of quality by relating our quality ratings with structural ECS variables has been done through exploratory data analysis and linear modelling. The duplication of individual ECSs through the sampling process presented some problems for the modelling process, and in hindsight it would have been better not to have had the same centre entered twice on the sample lists (though this would have meant the field work would have had to go beyond the Wellington region to get sufficient numbers of children and ECSs to allow better inference from the sample).

Significance Levels

We have taken a conservative approach to our use of significance in the associations found. Associations with a 1–5 percent probability of occurring by chance have been reported as "indicative" (italics in tables in chapters 9 and 10), associations between 0.01 and 0.001 are reported as "significant", and probabilities lower than this as "highly significant" (both bold in tables in chapters 9 and 10).

In the descriptive parts of the report (chapters 2–8), differences between groups or related to family characteristics such as income, mother's education, family type, and ethnicity are reported only if they have no more than 5 percent probability of occurring by chance, or if they are marginally above this. Bold figures in tables highlight groups which are different from others for the characteristic being reported.

"Lowest income" refers to family incomes of $20,000 or less; "low income" refers to family incomes of $30,000 or less; "middle income" to family incomes between $30,000 and $60,000; and "high incomes" to family incomes of more than $60,000.

The category of "highest" school qualifications refers to university bursary, scholarship, or higher school certificate.

CHAPTER 2

CHILDREN'S COMPETENCIES

Defining Competencies

Expectations of what children of nearly 5 can do differ from society to society. In our own, they are founded to some extent on perceptions of what we expect children will need to do when they enter the school setting. It is useful for children starting school to be able to interact confidently with adults and other children, to take some responsibility for themselves, and to have some acquaintance with the classroom tools of books and pens (Wylie & Smith, 1995). We do not expect the classroom to be an alien or totally novel environment, calling on entirely other sets of competencies—that is, knowledge, skills, and the combination of these—than those already developed in children's interaction with their world.

Children's ECS centres and school teachers therefore have some idea of what children can, or should be able to, do. But that understanding has not been translated into specific profiles, benchmarks, or standards. There are some sound reasons not to do so. Not least of these is the pressure or temptation to use instruments of measurement for purposes beyond their original design, thus giving them a directive role in decisions on children's learning and access to learning that they do not warrant. For example, in the United States screening instruments intended to establish which children have special needs are now commonly in use to gauge "school readiness", and children's access to schooling is decided on the results. This has led to a narrowing of the early childhood education curriculum, and the early experience of failure, with all its attendant negative consequences on children's motivation and their later learning achievement (Kamii, 1990).

Yet there is increasing interest in fleshing out our picture of children's competencies at this age, and, given the general policy emphasis on accountability and providing "proof" of effectiveness, a desire on the part of early childhood education researchers and teachers to develop means of describing children's competencies that:

- are appropriate for young children,
- are multidimensional rather than single standard (such as the much disputed IQ or general ability measures),
- reflect their environment, including early childhood education curriculum emphases, and
- are not superficial.

In drawing up the set of competencies which we assessed—or described—in this study, we concentrated on those which are linked with successful learning (as children and adults), participation in the social and work worlds, and the "core" curriculum provided by reading, writing, and mathematical understanding.

This gave us 10 competencies. Some could be gauged by children's activity on specific tasks; others, such as children's communicative skills and approaches, needed the observations of adults close to the children over a period of time longer than feasible for research involving 307 children. We think of the latter as *be-ing* competencies, and the former as *do-ing*.

Competencies

Be-ing	**Do-ing**
(Evidence from ECS teacher)	**(Evidence from child)**
Social-Emotional - Self - Peer—(evidence also from social problem-solving task) - Adult	
Communication	**Early Mathematics**
Inquisitiveness	**Early Literacy**
Perseverance	**Motor Skills**
	Logical Reasoning

When developing the measures used to assess children's competencies, the research team was influenced by the main aims of *Te Whāriki*, the early childhood curriculum. These identify the following aspirations for young children in Aotearoa/New Zealand:

> To grow up as competent and confident learners and communicators, healthy in mind, body, and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society. (Ministry of Education, 1996, p. 9)

Te Whāriki has 5 main aims: wellbeing, belonging, contribution, communication, and exploration. These aims are linked to more detailed goals for learning and development.

Wellbeing goals establish the importance of protecting and nurturing the health and wellbeing of children.

Belonging goals relate to the need for children and their families to have a sense of belonging, including comfort with routines, rituals, and regular events, as well as knowing the limits and boundaries of acceptable behaviour.

Contribution goals encompass equitable opportunities for learning and the valuing of each child's contribution.

Communication goals ensure that the languages and symbols of the child's own and other cultures are promoted and protected, and that children are given opportunities to develop their language skills in real play, and in problem-solving contexts. Music is included in these goals, as children are encouraged to sing songs and experiment with different forms of musical expression and dance.

Exploration goals relate to the opportunities offered to children to learn through active exploration of their environment, including learning through physical play and strategic thinking. Gross- and fine-motor skills are linked to these goals, as children gain confidence in, and control of, their bodies. Skills related to early literacy, Early Mathematics, puzzles, and problem-solving are also strongly linked to exploration, as children are encouraged to learn strategies for thinking, planning, reasoning, and solving problems through the use of different resources.

ECS Staff Expectations of Children's Competencies

To see how congruent the goals of *Te Whāriki*, and our measures of children's competencies were with ECS provision, we asked staff at the study ECSs what competencies they would expect a child of nearly 5 to have in the following spheres:

- Communication (language)
- Social skills
- Learning/exploration (e.g., inquisitiveness and perseverance)
- Early literacy
- Early mathematics
- Puzzles/problem-solving
- Physical ability (e.g., outside play, balancing, ball-handling)
- Physical dexterity (e.g., in fine work with hands)
- Music

Below are the main competencies identified by most of the ECS staff. On the whole they are quite specific, with broader pictures drawn of the competencies such as communication, social skills, learning, and exploration.

Communication: Describes and discusses past, present, and future events; feelings; wants; needs; stories. Can explain a situation in a meaningful way.

Social Skills: Takes turns and plays co-operatively; shares; joins in well.

Learning and Exploration: Shows great curiosity; asks many questions.

Pre-reading Skills: Recognises own name; shows interest in and enjoyment of books/print; enjoys listening to stories (and concentrates while doing so); has a favourite story; handles books correctly (e.g., right way up); knows to read from left to right, from front to back; has concepts of basic text; is familiar with books; has print awareness, knows that letters are symbols, that text has meaning, that books tell stories; is aware of the difference between pictures and words.

Pre-writing skills: Writes or attempts to write own name.

Early Mathematics: Has a basic understanding of number (e.g., can rote count from 1 to between 5 and 20, possibly higher); understands basic concepts related to weight, place, size, position, distance, capacity, quantity, spatial awareness (e.g., full, half, under, up, in).

Puzzles and Problem-solving: Attempts/completes puzzles of varying degrees of difficulty (e.g., multipiece and 3-D puzzles, inset boards, blocks, train tracks, jigsaws, form boards, fractions, mosaic boards, posting boxes, pyramids); explores pattern-making; plays in mathematics/science area, with water, sand, and carpentry.

Physical—Fine-motor Skills: Handles one or more drawing/writing implements (e.g., pen, pencil, crayon, brush, cotton bud, etc.) with control; uses scissors to cut/cut around shapes; threads; sews, weaves.

Physical—Gross-motor Skills: Is developing ball-handling skills: able to bounce, throw, catch, kick, roll, hit a ball with a racquet or bat (with varying degrees of accuracy); is developing balancing skills (e.g., able to walk along a narrow line/beam/plank); can stand on one leg.

Music: Knows words and tunes for a range of (action) songs, nursery rhymes, and finger plays.

Perseverance did not emerge as a main theme amongst ECS staff views of competencies for a near-5-year-old, though it was mentioned by quite a few. Nor did the *Te Whāriki* goal of Belonging, though again it emerged in quite a few comments, and is certainly evident in the set of behaviour rules for children at each ECS.

As with the project's own approach to competencies, the behaviour, skills, and knowledge outlined were goals rather than standards, and not every child was expected to meet all of them equally well. As we shall see, many of the children in the study could do many of the activities mentioned by ECS staff, with varying degrees of achievement.

Measures of Competence Used in This Study

While some of the tasks and adult judgments in this study have been used before, most are new to New Zealand. The development of our competency measures, including validation, is described in the separate volume of Technical Appendices.

Our task in this study has been to describe children's performance on the measures we developed or selected, and to analyse their performance in the light of their family and early childhood education resources and experiences. The measures are not standards: we do not assign children to categories of "competent" and "incompetent",[6] for the reasons outlined at the beginning of this chapter. A description of the range of performance on a set of tasks and the range of adult assessments based on observation and experience over time may provide benchmarks or points of reference for thinking about individual children's progress. To turn them into specific checkpoints or designations of comparative competency is counterproductive if the aim is to support children's learning (Wylie & Smith, 1995).

We hope that the competencies and associated measures will prove useful to other researchers and to people working with children of this age. Some are currently in use in the evaluation of the pilot family service centres currently being undertaken by researchers from NZCER and the Ministry of Health. An accumulation of studies would allow some standardisation, or the ability to compare individual children's performance with the norm for this age, with the caveats on the use (or potential misuse) expressed above.

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[6] Some of the participants in our study did see "competent" in this black and white light, and took the title of the project —Competent Children—to mean the children participating had been judged as meeting certain standards.

The "Be-ing" Competencies

Six competencies—communication, inquisitiveness, perseverance, peer social skills, social skills with adults, and independence—were assessed by asking the child's ECS teacher to say whether a description matched the child, phrasing their answers in terms of a 5-point scale (always; often; sometimes; hardly ever; never). These ratings have been numerically converted for use in tables (always = 5, never = 1).

The competency Peer Social Skills was measured by combining ECS teacher assessments with the child's performance on a social problem-solving task.

Most of the ECS teachers and Family Day Care caregivers[7] had known the child they were describing for about 2 years (a mean of 26 months, SD* of 14.6 months). The range was from "just met" to the full 5 years of a child's life. Most of the teachers who described children to us were the early childhood centre supervisors (73 percent). Nineteen percent were other staff members, and 8 percent Family Day Care caregivers.

Most of the children were aged 4 years 11 months when their ECS teachers were interviewed, with 10 percent aged 4 years 10 months, 16 percent aged 5, and 4 percent between 5 years and 5 years 2 months old. It was not possible to carry out the interview for one child, so the total number of children in these descriptions is 306 rather than 307.

Table 4

Teacher Ratings of Children's Competencies

(N = 306)

Competency	Mean—as %	SD*—as %
Independence	88	10.5
Communication	81	13.5
Social Skills with Adults	81	13.7
Perseverance	74	12.1
Inquisitiveness	74	14.3
Peer Social Skills	73	14.5

* Standard deviation

The highest average score (expressed as a percentage) is for the set of items which form the measure for the Independence competency), and the lowest for Peer Social Skills, Inquisitiveness, and Perseverance competency sets.

The next set of tables gives the range of ratings on the 5-point scale for each item within the "Being" competencies. In any scale there is a tendency for clustering at the middle figure. Therefore the most telling items are those which have a higher proportion of children than average for the ratings scoring a maximum, and, conversely, those items where more than the average proportion score less than the mid-point of 3 are perhaps the most telling.

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[7] Teacher and parent perceptions of children were so similar in the pilot of the study that we decided to ask only the child's ECS teachers for their assessment to keep both time costs for parents and financial costs for the study reasonable.

Table 5

Inquisitiveness and Perseverance

(N = 306) Rating	5 %	4 %	3 %	2 %	1 %	Mean rating
Inquisitiveness						
Asks a lot of questions and/or likes to take things apart	21	41	28	10	1	3.71
Explores and asks about people, animals, plants	15	29	33	21	2	3.34
Likes to play with things that fit together/build	29	45	19	7	1	3.93
Gets excited about new books, places, toys, experiences	28	42	22	7	2	3.86
Perseverance						
Keeps trying till resolves problem with puzzle/toy	16	41	34	7	1	3.64
Persists in problem-solving when creating	17	40	31	11	1	3.61
Can get another child to give a turn by asking[8]	14	39	39	7	0	3.59
Good concentration span on things of interest	50	42	7	1	0	4.41
Makes effort, even if unconfident	8	30	37	22	3	3.18

While children's attention span in activities that interest them was rated very highly for most of the children, 25 percent were thought generally unable to make an effort when they were unconfident about a particular activity. This indicates that interest and confidence are likely to be found together. The other item in which quite a few children scored low is on the exploration of, and asking questions about, people, animals, and plants. These aspects did not seem as interesting to children as construction (or deconstruction), or novelty.

Some significant gender differences emerged for some items in these concepts. Only 1 percent of boys were thought by their teachers never, or hardly ever, to enjoy playing with things that fit together, compared with 15 percent of girls.

Half the boys would persevere with a puzzle despite meeting problems often or always, compared with 68 percent of the girls. A quarter of the girls would always persevere with creative work, even though they encountered problems, compared with 10 percent of the boys. A third of the boys would never or hardly ever make an effort if they lacked confidence in the activity compared with 15 percent of the girls.

Both the Inquisitiveness and Perseverance measures were reasonably normal in their distribution, once standardised, or items combined and converted into a percentage. The median score for the Inquisitiveness measure was 69 percent, with a range from 6 percent to 100 percent. The maximum score was achieved by 12 children. The median score for the Perseverance measure was also 69 percent, with a range from 19 percent to 100 percent (8 children).

The highest correlation coefficient between the specific items in the Inquisitiveness measure was r = 0.63. A correlation coefficient of 1 would mean that each child in the study scored the same score for each of 2 questions being compared; a correlation coefficient below 0.3 or so has little practical meaning in this context.

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[8] This item was taken out of the measure for Perseverance when it came to analysis, including the mean percentage reported in table 16, since it seemed to overlap too much with the questions asked in the Peer Social Skills set of questions.

Receiving the same score on 2 items can indicate an underlying competence or "ability", perhaps being directed at different fields. The highest correlation coefficient of 0.63 amongst the individual items making up the Inquisitiveness measure was for the pair of questions directed at whether the child asked a lot of questions and/or liked to take things apart, and whether the child explored and asked about people, animals, and plants. Yet there was a surprisingly low correlation of 0.31 between asking lots of questions and/or liking to take things apart, and liking to play with things that fit together or building, almost as low as the correlations between liking to play with things that fit together or building, and exploring and asking about people, animals, and plants (r = 0.26), and getting excited about new experiences (r = 0.26). The correlation between getting excited by novel experiences and asking lots of questions and/or taking things apart was 0.49, indicating some, but not substantial, overlap. This may reflect the inclusion of "taking things apart" in the first item.

These correlations suggest that liking to play with things that fit together, like Lego, does not necessarily mean that a child has a high degree of curiosity and enjoys new experiences—and vice versa.

The lowest correlation for the Perseverance measure items is 0.31, between having a good concentration span on things that interest the child, and making an effort to do something, even if the child feels unconfident. This indicates that concentrating on things of interest does not mean that a child is equally able to concentrate and work on things which might not be of interest, which are novel, or in which the child has experienced setbacks or "failure".

The highest correlation for the Perseverance measure items is 0.58, a fair but not high correlation, between persisting beyond problems encountered in doing puzzles or toys which fit together, and persisting beyond problems encountered in doing something creative. This suggests that problem-solving might be a competence which can be applied in different fields.

Table 6

Social-Emotional Competencies

(N = 306) Rating	5 %	4 %	3 %	2 %	1 %	Mean rating
Independence						
Independence in dressing, washing, going to toilet, etc.	77	19	3	1	0	4.71
Clearly conveys needs and feelings	45	35	15	5	0	4.18
Follows centre routines without having to be reminded	44	38	16	2	0	4.25
Peer Social Skills						
Takes turns, shares, understands rules and fair play	26	44	27	3	0	3.93
Can sort out differences with other children	24	45	25	5	0	3.85
Can see another point of view	7	33	42	13	2	3.20
Social Skills with Adults						
Holds confident conversations with adults	36	35	21	7	0	3.96
Accepts adult explanations about acceptable behaviour	38	39	21	2	0	4.13
Asks for help and/or information when needed	36	41	18	6	0	4.07

Very few children needed help in going to the toilet, washing, or dressing themselves. They were confident in their dealings with adults in the ECS. Most children had also learnt to live within the ECS routines, and to demonstrate their needs and feelings. The majority of children could play equably with their peers, most of the time. It was much harder for them to see another child's point of view.

Boys were less likely always to follow the ECS routine without reminder (38 percent compared with 51 percent of girls). They were also less likely to accept adult explanations of acceptable behaviour: 33 percent always did, compared with 45 percent of the girls. Boys also scored lower on 2 of the Peer Social Skills questions, but higher on the third: 19 percent of the boys never or hardly ever saw another child's point of view, compared with 10 percent of the girls; 19 percent of the boys also always played co-operatively with their peers compared with 30 percent of the girls, yet 34 percent of the boys always took turns, and shared with other children, compared with 24 percent of the girls.

The median score for the Independence measure was 83 percent, with a range from 42 percent to 100 percent. The maximum score was achieved by 74 of the children, skewing the distribution. Correlations between each of the 3 items making up this measure were all very low (0.16 to 0.24). Thus it seems likely that being able to wash or dress yourself at this age has little bearing on your ability to follow centre routines without having to be reminded of them, or to convey clearly your needs or feelings.

The median score for the Peer Social Skills measure (which includes the Social Problem-solving task described later in this chapter) was 68 percent, with a range of scores from 12 percent to 100 percent (6 children). The distribution of the scores was approximately normal. The correlations between the 3 adult assessments fell between 0.56 and 0.60, showing some association between the ability to play co-operatively, share and play fairly, and see another child's point of view. There was very little correlation between these general assessments and the children's responses to the Social Problem-solving task, and little correlation (0.18) between the 2 answers in that task.

The median score for the Social Skills with Adults measure was 75 percent, ranging from 25 percent to 100 percent (40 children). The high number of children with a maximum score again gives a skewed distribution. The lowest correlation was between children's confidence in conversing with adults and their accepting adult explanations about acceptable behaviour (0.19). This may indicate that children's confidence with adults is high enough to allow them to also question adults![9] This interpretation fits with the fair correlation (0.58) between confidence in conversations with adults and asking for help or information if the child needed it, and the low correlation between the latter item and accepting adult explanations about acceptable behaviour (0.28).

The children's confidence in relations with others was echoed in their language use, as the next table shows. Not surprisingly, it was somewhat less common for them to push the boundaries of that confidence—to experiment with language, to vary their speech according to context, or to admit lack of understanding and press for another explanation.

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[9] One is reminded of the growing consensus amongst early childhood researchers overseas that teachers have overrated assertive behaviour as aggressive (e.g., Scarr & Eisenberg, 1993).

Table 7

Communicative Competence

(N = 306) Rating	5 %	4 %	3 %	2 %	1 %	Mean rating
Communication						
Receptive						
Able to remember and carry out simple instruction heard once	41	44	14	1	0	4.25
Asks for something not understood to be repeated or explained again	27	36	21	11	3	3.70
Follows conversation and stays on same topic	34	44	19	1	1	4.08
Understands story being read out, or children's TV programme	63	34	3	1	0	4.34
Can pass on simple messages	36	43	15	3	1	4.04
Expressive						
Easily understood	55	28	14	3	0	4.34
Varies speech depending on situation	35	36	18	10	1	3.92
Experiments with language	12	40	31	12	2	3.40
Gives clear explanations	36	40	18	5	0	4.07

Girls were more confident in their conversations with adults: 44 percent were always confident, compared with 29 percent of the boys, and more could always vary their speech according to the situation, 42 percent compared with 28 percent of the boys.

The median score for this measure, once standardised, was 78 percent. The lowest score was 33 percent, while 7 children scored 100 percent. This gives a slightly skewed distribution.

Correlation coefficients amongst the 9 items comprising this measure ranged from 0.17 to 0.57. The latter correlation was between the questions asking whether a child asked for something to be repeated or explained again if she or he did not understand, and whether the child gave clear descriptions of his or her experience. This association may indicate an appreciation for detail. There was a correlation of 0.54 between the ability to vary speech to get across ideas, and experimenting with language, and one of 0.50 between the ability to follow a conversation and stay on the topic, and the ability to remember and carry out a simple instruction heard once. The last 2 items could be tapping memory as well as language skills. The lowest correlation of 0.17 was between the ability to remember and carry out a simple instruction, and experimentation with language. This might suggest that the taking in and carrying out of instructions calls on a skill or attitude different from those of pushing at the horizons of one's knowledge.

The "Do-ing" Competencies

These were assessed by tasks included in an interview with the children in the study. Three-quarters of the children were interviewed when they were 4 years 11 months; 4 percent were 4 years 10 months, 18 percent 5 years old, and 2 percent between 5 and 5 years 3 months old. English was the primary language for 95 percent of the children.

Peer Social Skills Competence

The Social Problem-solving task was a shortened version of the task developed by Spivack and Shure (1974), described in Holloway and Reichart-Erickson (1988). The children were shown 2 cutouts of identical children of the same gender and ethnicity as themselves, and a train. They were told that one child had been playing with the train "for a long time, all morning. Now the other child wants to play with it. What can the other child say or do so that s/he can have a turn with the train?"

The predominant response from 77 percent of the children came into the *social request* category: "please", "I'd like a turn", "let's be friends". One percent made a *justified request*: "I haven't had a turn for a while". Four percent of the children would either make an *aggressive* response (verbal or physical), or a *passive* response (such as going away, just waiting, giving up), 3 percent would find something else to do, and 2 percent would ask an adult to help them. Six percent could not think what they would do in such a (common) circumstance. Boys and girls showed the same pattern of responses.

The high level of positive and active responses to the situation does credit to the emphasis, in many of the ECS centres in the study, on children taking responsibility for themselves in social interaction with their peers, and their emphasis on respect for one another and sharing (chapter 8).

However, the pattern of responses was different when the child was asked what they would say or do if their first overture met with no success. While 19 percent would repeat or rephrase their *social request*, 20 percent would now fetch an adult, 8 percent would become aggressive, 7 percent would do nothing or go away, and another 7 percent would find something else to do. Three percent would provide a *justified request*. And 24 percent could not think what they would do.

Thus while the study children were more likely than not to be reasonably but pleasantly assertive in their first attempt to solve a problem involving another child and a desirable activity, they seemed not to be able to continue this line of problem-solving if it met with initial resistance.

Early Mathematics

The mathematics tasks are derived from the SENS instrument designed by Jenny Young-Loveridge (1991), and tasks used by the Ministry of Education's researchers evaluating the Beginning School Mathematics (BSM) programme (Visser & Bennie, 1996). The tasks focus primarily, but not exclusively, on number. The results are generally close to those found for similar age ranges in both the BSM study and Young-Loveridge's 1985 Christchurch study (Young-Loveridge, 1987). However, the studies carried out more recently show higher scores for set formation, numeral identification, and rote counting to at least 20, and lower scores for sequence forwards and enumeration. Our children's performance on the linear patterning task was much lower than the Ministry of Education's sample, their recognition of triangles higher, but their recognition of rectangles lower. No ready explanation of these differences is apparent. The same method of introducing the task to the children was used in both studies. The very similar performance on the number tasks would suggest that the samples were comparable in terms of the variables which emerge in this study (chapter 10) as associated with differences in performance on these tasks.

Table 8

Children's Performance on Number Tasks

	CC 1993–1994 4.10–5.2 years mode 4.11 years (N = 306) %	MoE 1992 5.1–5.2 years (N = 199) %	YCM[10] 1985 5–5.1 years (N = 81) %
Forming Sets			
2	97	96	94
5	82	74	62
9	61	65	46
13	40	36	-
Numeral Identification			
2	81	77	59
5	77	74	64
8	63	61	-
9	53	47	32
14	33	31	-
27	11	14	-
84	9	8	-
Pattern (Dice) Recognition			
2	88	87	84
6	44	47	53
5	49	50	63
Rote Counting			
To at least 10	87	85	95
To at least 20	39	38	26
To at least 30	19	18	11
Sequence Forwards			
Number after 5	69	65	58
Number after 16	33	33	32
Number after 29	11	11	21
Enumeration			
9 objects	69	69	84
14 objects	39	36	42

Contrary to some stereotypes, but consistent with other New Zealand research of 5-year-olds (Slyfield, 1993, p. 7), boys' and girls' overall scores on the mathematical tasks were much the same. On 2 individual items, girls' scores were better than boys': 14 percent of boys scored nil for the pattern (dice) recognition, the girls 6 percent. Thirty-seven percent of the girls could pick up and reproduce the linear pattern we set down before them, compared with 19 percent of the boys.

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[10] CC refers to this study, Competent Children; MoE refers to the Ministry of Education; YCM refers to Jenny Young-Loveridge's study, (Young Children's Mathematics).

Table 9

Children's Performance on Shape Sorting and Linear Patterning

	CC study 5-year-olds (N = 306) %	MoE BSM study 5-year-olds (N = 199) %
Shape Sorting		
Hexagons	41	37
Rectangles/oblongs	48	71
Triangles	39	23
Linear Patterning		
Correct, no prompting	27	50

The median score on the Early Mathematics measure is 51 percent. One child scored nil, while another scored 100 percent. The distribution is reasonably normal, with some slight skewing towards the upper end. There was little correlation between the linear-patterning and shape-sorting tasks, and the number-focused tasks (a range of r = 0.11 to 0.30). Correlations amongst the number-focused tasks ranged from r = 0.39 to 0.61, showing some associations, but also differences in the knowledge and skills being drawn on for each set of items in the task.

Early Literacy

Four of the 6 reading tasks were taken from Marie Clay's diagnostic tasks widely used by teachers both in New Zealand and overseas to assess children's early literacy skills. The writing task and some reading tasks were developed in consultation with advisory teachers and other researchers.

Clay (1981, p. 19) provides information from her New Zealand research in the late 1960s and the 1970s on the age at which 50 percent of average European children would pass an item. There are intriguing differences in the results she reports and the results of this study in 2 of the 4 common items. The age she gives for passing an item by 50 percent (or presumably more) is 5½ years for handling books appropriately (though 5 is the age for understanding that print rather than the picture carries a book's message) and 6 years for locating words. Yet 87 percent of our near-5-year-old sample could handle books appropriately, and 51 percent could locate words.

There were no gender differences on the reading scores, but a large difference in whether or not the children could write their own names. A quarter of the boys scored nil or less than 2 out of a total score of 8, compared with 9 percent of the girls. While this difference in writing achievement is consistent with higher achievement by girls in New Zealand studies of children aged 9 to 12 (Slyfield, 1993, p. 7), the lack of gender difference for reading performance just before entering school is not consistent with most of the New Zealand studies of the reading achievement of children between the ages of 6 and 13 years (Slyfield, 1993, p. 6). This raises questions about whether boys' initial school experience differs from girls', or whether there were existing differences in reading techniques or approaches to reading which our measures did not encompass.

Table 10

Literacy Competencies at Age 5

(N = 306)

Skill/behaviour	%
Handles books appropriately	87
Understands that text rather than picture is to be read	61
Can turn pages one at a time, and can offer a "story" relating to pictures	
(at least half pages in book used)	81
(all pages in book used)	24
Awareness of word concept	51
Awareness of letter concept	39
Letter recognition	
(identified first letter of own first name)	85
(gave another word starting with letter)	69
(identified sound relating to letter)	45
Name writing	
Both first and second names spontaneous and correct	6
First name	
spontaneous—correct	46
spontaneous—errors	30
copied correctly	6
copied with errors	11
Family name	
spontaneous—correct	6
spontaneous—errors	6
copied correctly	34
copied with errors	38
Unable/unwilling to write name	6

The median score for the Early Literacy Measure was 72 percent, with a range from zero (one child), to 2 children scoring 100 percent. The distribution was skewed: only 10 percent of the children scored less than 45 percent.

All the correlation coefficients were low, with a range of r = 0.09 to r = 0.31. Thus one cannot infer that a child who knows that print rather than pictures carry a story will also be able to recognise letters, or write their own name. Or to put it another way, no single item, or even 2 or 3 items, in this set of tasks could reliably convey a child's early literacy performance. This is especially important in the context of interest in some quarters in value-added assessment which would rely on school-entry measures. Check lists of items in most of the competencies we have analysed would provide only unreliable data.

Motor Skills

The tasks here were derived from the South Australian Motor Skills Test, the Carolina Curriculum, the Preschool Developmental Profile, and the Early LAP. Some children were unable to get a minimum score of one for each task. Gross-motor skills were higher than fine-motor skills. Very few of the children scored highly on tracing or scissor use, though most were used to handling scissors. A high score on scissor use or tracing reflects an accuracy which may be beyond most children of this age. Only one child achieved the maximum score for scissor use.

Table 11

Motor Skills

(N = 306)	Range	Mean	SD	% at Max. score
Gross				
Standing on one leg	0–4/4	3.4	0.98	65
Bouncing and catching a ball	0–2/2	1.33	0.76	51
Hopping	0–6/6	4.7	1.62	48
Fine				
Lacing card with running stitch	0–3/3	2.45	0.83	64
Transferring small object	0–2/2	1.56	0.56	60
Tracing (square and triangle)	0–4/4	1.3	1.04	1
Scissor use	0–4/4	0.6	0.61	0.3

Fifty-eight percent of the boys could bounce and catch a ball well compared with 41 percent of the girls. Boys were much better at using their clothes peg to transfer small objects: 68 percent could do our task, compared with 50 percent of the girls. Scissor use showed no association with gender; nor did lacing a card. But 32 percent of the boys in the study scored nil for our tracing and cutting-out task, compared with 19 percent of the girls.

The median score for the Motor Skills measure was 66 percent; the lowest score was 5 percent (2 children), and the highest 96 percent (also 2 children). The distribution was somewhat skewed at either end.

Correlations were generally low, with most between r = 0.10 to 0.33, with one exception. Hopping forward on one foot and balancing on one leg showed a correlation of r = 0.53—reasonable, but not high. The low correlations might indicate that physical abilities are not generic, and that ability to hold a pen, say, cannot be inferred from achievement in lacing, or transferring objects.

Logical Reasoning

We used 11 tasks from the "Ravens" Coloured Progressive Matrices to assess children's logical problem-solving skills. The maximum score for these was 11. The average score was 6.94 (SD 2.72).

A third of the children scored 9–11, 21 percent scored 7 or 8, 24 percent scored 5 or 6, 16 percent scored 3 or 4, and 6 percent scored nil, 1, or 2 points on this task. These indicate a uniform, rather than normal, distribution of achievement on this set of tasks. Gender was not associated with any differences in the pattern of scores.

When standardised, the median score for this task was 64 percent; 2 children scored zero, and 29 achieved the maximum score. Unlike the other competency measures, the distribution of the Logical Reasoning score was approximately uniform, or close to what one could expect if the scores had been randomly assigned.

Children's Attitudes to the Project Tasks and ECS Activities

Attitudes to the Tasks

The child's attitude to the tasks was recorded by the field workers. Several codes could be used for the one child. Sometimes the child's attitude also changed during the course of the interview. Seventy percent of the study children were described as quick, confident, or matter of fact, 22 percent as seeking help or confirmation during the tasks, 24 percent as restless or rushing through the tasks, and 37 percent as afraid of the tasks, unwilling to do them, or withdrawn.

These categories are not ratings, nor are they mutually exclusive. They were not checked for inter-rater reliability. Thus the brief descriptive analysis which follows needs to be treated with caution. Confident children generally scored higher on the mathematics tasks. Restless children were the ones most likely to get a nil score on scissor use. One possibly surprising association was that children seeking help or confirmation were the ones most likely to field an aggressive response to the social problem-solving task if their first response failed. No differences related to gender, ethnicity, family income, or family type emerged in the field workers' descriptions of children. Mother's education was related: 80 percent of those children whose mothers had bursary or higher school certificate were described as quick, confident, or matter of fact, ranging down to 53 percent of those whose mothers had no school qualification.

Children's Favourite, and Least Favourite, ECS Activities

We asked the children what their most, and least, favourite activity, was at the early childhood centre we interviewed them in, and what help they gave there. One purpose of these questions was to provide a "warm up" for the rest of the interview; but they were also designed to provide information to set results on tasks into context, and to illuminate children's experience of their early childhood education centres. The data cannot tell us whether children's preferences were guided by what was available in the ECS centre they attended, their individual preferences, or what was available to them at home.

It was much easier for children to find favourite activities than those they did not enjoy. Some children gave us more than one activity for either question.

Table 12

Children's Favourite and Least Favourite Activities at Their ECS

(N = 306) Activity category	Favourite %	Least favourite %
Aesthetic-creative (e.g., painting)	35	9
Outdoor physical activity	33	10
Mathematics/science related (e.g., blocks, water play)	25	12
Social play/interaction (e.g., playing/not playing with friends)	10	8
Sociodramatic (e.g., family corner, dress ups)	10	5
Literacy related	6	4
Do not know	3	7
Nothing/I like everything	0	18
Being hurt	0	8
ECS routines/rules	0	4
Waiting	0	1

It is interesting that sociodramatic play, which is associated in the literature with the highest level of peer social competence, is not high up on children's preferences. There were no significant differences in girls' and boys' preferences.

Children's Help at the ECS

Cleaning up or tidying away was the main helping activity reported by the study children (42 percent). Thirteen percent mentioned helping with other children, 8 percent cooking, and 7 percent putting-out activities. Eight percent of the children said they did nothing to help. It is interesting that cooking, which is seen by early childhood teachers as an educational activity as well as nutritional, is seen by the children as something they do to help adults. There were no differences related to gender.

Children's Reactions to Difficulties Encountered in Construction

We asked the children what they would do if they were trying to make something, but could not. Our reason for including this was to gain some additional insight into the children's perseverance, though we did not use answers to this question in the Perseverance measure used for the regression analysis of competencies. The dominant response from both sexes was to request help from an adult: 52 percent. Seventeen percent would turn away from the problem and make or do something else. Ten percent would persist with the activity. Seven percent would request help from another child. Eight percent could not think what they would do, and the same proportion would give up. Three children, all boys, would do something aggressive. This might appear to indicate a lower level of persistence than we gained from the adult assessment. However, seeking adult help before continuing with a task also seems a productive response which is not at all inconsistent with continuing to make an effort.

The Competencies in the Light of Te Whāriki

The new curriculum guidelines were already overtly informing practice in some of the study ECS centres. In many, they appeared to encapsulate principles or intentions which were already important for ECS staff. Over all, the children in this study appeared to be confident in their communication with others, in their physical activities, to have a sense of belonging in the ECS—not only knowing and respecting "the rules", but seeing the ECS teachers as the first people to ask for help with some activities, and to be pressing further and further into the realms of reading, mathematics, and writing. The guideline goals in the new curriculum of wellbeing and contribution are less directly discernible in the children's competency levels, though the understanding of the need to share and play fairly could be seen as an indicator of children's understanding that each child is valued.

Relationships Amongst the Competencies

After examining the composition and distribution of each competency measure individually, the inter-relationship between each of the 10 competencies was examined through a principal components analysis and a factor analysis (detailed in the Technical Appendices volume).

Principal Components Analysis

The principal components analysis gave an estimate of how much information each competency was contributing to each of 5 components (linear combinations of the competency measures) in comparison to the other competencies; and how much each component accounted for the overall variance of the competencies. The first 5 components cumulatively accounted for 79 percent of the overall variance.

The first component accounted for 37 percent of the overall variance. The loadings, or computed contributions of each individual competency to the component, ranged from 0.41 for Communication to 0.22 for Logical Reasoning. This is not a very wide range. However, one could consider there to be some difference between the competencies contributing more than around 0.3 and those contributing less. Group one, the competencies which contributed more than around 0.3, comprises Perseverance, Independence, Peer Social Skills, Social Skills with Adults, and Communication. We will call this grouping **Communication and Social Skills**. Group two, the competencies which contributed less than 0.3 each, is made up of Inquisitiveness, Early Mathematics, Early Literacy, Logical Reasoning, and Motor Skills. We will call this **Cognition** for short.

These two groups, with the exception of Inquisitiveness, which moves toward the first group, also appear in the second component (ranges of 0 to -0.315 for the first group, and from 0.320 to 0.517 for the second group; Inquisitiveness is -0.224). By the time the second component is considered, 55 percent of the observed variance has been accounted for.

The third component accounts for another 9 percent of the variation. Peer Social Skills is the major contributor with 0.606, but this is almost balanced in the opposite direction by Inquisitiveness, -0.591. The groups are less distinct in this component: Communication and Social Skills competencies range from -0.138 to 0.606, and Cognition from -0.591 to 0.211.

The fourth component accounts for another 8 percent of the variation. Motor Skills are the main contributor (-0.839), followed by Logical Reasoning (0.440). The two groupings are not distinct in this component.

Finally, the fifth component accounts for 7 percent. Perseverance is the major contributor, 0.699. The two groupings are not distinct.

Thus the 2 groupings are discernible in only the first 2 components. However, these 2 components together account for just over half of the total variance.

Factor Analysis

To see how strong these 2 groups were, we next performed a factor analysis on the competencies. This is similar to a principal components analysis, but with less focus on individual competencies. Instead the analysis assumes there are some general, possibly unmeasurable, underlying factors (such as, for example, intelligence, environment, experience, training, etc.) which have given rise to the data observed, and which are evident in any linear combinations which may emerge from the factor analysis.

We allowed for 3 factors. Cumulatively, these factors accounted for only 49 percent of the variance in the data on children's competencies. The major contributors to the first factor (ranging from 0.439 to 0.730) were all members of the Communication and Social Skills group. The major contributors to the second factor (ranging from 0.442 for Motor Skills to 0.789 for Early Mathematics) were all from the Cognition group. The 2 groups were not distinct in the third factor. The main contributors to this factor were Inquisitiveness, 0.627; Communication, 0.581; and Social Skills with Adults, 0.440.

As with the principal components analysis, 2 groups of competencies are visible, albeit with somewhat fuzzy boundaries, and only accounting for around half of the variance in the competency data.

Table 13 below gives the "uniqueness" of each of the competencies. This is a measure of how much unique information each contributes to the overall variance when compared with the other competencies. The lowest uniqueness values will tend to belong to those competencies which have the highest correlation, here, Communication and Social Skills with Adults.

Table 13

Uniqueness of the Competency Measures

Competency	Uniqueness
Motor Skills	0.77
Logical Reasoning	0.67
Perseverance	0.64
Peer Social Skills	0.63
Inquisitiveness	0.56
Early Literacy	0.43
Independence	0.41
Early Mathematics	0.37
Communication	0.29
Social Skills with Adults	0.27

The most unique competency measure is Motor Skills (77 percent). It seems intuitively reasonable that Motor Skills could be something quite different from the other competencies. While the same could be said of Logical Reasoning (67 percent), its moderately high uniqueness measure could be a reflection of the fact that this measure appeared to be following a somewhat different overall distributional pattern than the other competency measures.

Peer Social Skills is also standing somewhat alone (63 percent), especially when compared with the other 2 social-emotional measures. The remaining moderately high uniqueness is for Perseverance (64 percent).

From these factor analyses we can conclude that the 2 groupings identified in the principal components analysis do point to 2 possible factors underlying the competencies measured in this study.

The first of these factors—Communication and Social Skills—may underpin the 3 social skills competencies, Communication Skills, and Perseverance.

The second factor may underpin the Cognition grouping of Early Mathematics, Early Literacy, and, to a slightly lesser extent, Logical Reasoning and Motor Skills.

However, these factors are *not* independent. Factors 1 and 2 (Communication and Social Skills and Cognition) have a correlation of r = 0.65; factors 1 and 3 (Communication and Social Skills and Inquisitiveness, plus some Communication and Social Skills) not surprisingly has an r = 0.92; and factors 2 and 3, r = 0.57.

Thus these groupings or factors are indicative rather than conclusive. They show associations but they also indicate that each competency is not reducible to another. The relative distinction of each of our competencies confirms our intitial hypothesis that "competency" is multifaceted, and not reducible to one measure or aspect only. If each of our competencies is distinct, and each is important in how well children function both as children and adults, then the grounds for measuring children's knowledge, skills, or ability by a limited number of skill tasks, or by performance in the "3Rs" only, becomes highly questionable.

The need for activities in the early childhood education curriculum which address each of these competencies also becomes clear.

Summary

The majority of the children nearing 5 in this study were:

- confident in their communication with others;
- could look after their own dressing and toileting;
- could solve problems in their exploration, games, and construction activities;
- were familiar with books and knew how books should be read; and
- were familiar with numbers up to 10.

Half the children could recognise the letters of their own name, and write their first name, and just under half could correctly name different shapes.

The lack of association between the competencies, and between the tasks or ratings in each of the competency measures, has several important implications for early childhood assessment, and national policy. It means that check lists of single items for any given skill or knowledge area are unreliable indicators of children's performance at this age. Any national assessment of 5-year-olds should be far more sophisticated, especially if the assessment is to be used to measure the effectiveness of schools, or the value they add to children's achievement.

If ECSs are to contribute to children's achievement in each competency area, then their curriculum will need to include activities for all of them.

CHAPTER 3

CHANGE: CONSTANCY IN PRESCHOOLERS' LIVES

Types of Change

Eighty-eight percent of the parents[11] we interviewed said that there had been changes in the child's life over the last 3 to 4 years.[12] Half the children had moved house at least once, and almost half had experienced a change in their household composition—a new member of the family, or a change in those members. Parents had changed jobs in a fifth of the study families during that time. Sixteen percent of our sample experienced either the frequent absence of one parent, or their long-term absence. Thirteen percent had experienced the death of a family member or friend. Fourteen percent had changed their early childhood education service (specific figures given for children's actual ECS attendance (chapter 7) indicate that only 30 percent attended only one ECS, so the figure of 14 percent may refer only to current or very recent ECS changes). Five percent of the parents mentioned financial difficulties in the family, and another 6 percent an accident or major illness in the family to which family members had had to adjust.

Children from households with an annual income of $20,000 or less were more likely to have moved house (64 percent), experienced the long-term or permanent absence of one parent (44 percent), the frequent absence of a parent (35 percent), or financial difficulty (11 percent). Given that a high proportion of the sole-parent families in this study fell into this very low income bracket, it is not surprising to see similar patterns for children from these families: 55 percent had experienced parental absence, compared with 8 percent of 2-parent households, and 62 percent had moved house, compared with 45 percent of 2-parent families. Children from extended families were most likely to have experienced the death of a family member or friend (33 percent), or a change in household composition (78 percent).

Children from households in the highest income bracket were most likely to have had a change in their ECS (25 percent, compared with 7 percent of those in the lowest bracket). Change of adult employment was highest for those in the income bracket $20,000–$30,000 (35 percent).

Was there anything unsettling for the children in our study at the time we spoke with their parents? Forty-four percent identified something that was a cause of difficulty for their child. In most cases this was the prospect of school (16 percent). Other causes for the child being unsettled were friction or stress at home, a change in the family, illness, the children's friends moving on to school, a change in parents' job patterns, or the child being picked on.

Of those children who were unsettled, 18 percent were coping well. Sixteen percent were talking a lot about the issue. A quarter were making greater demands on their parents and those around them. A quarter showed behavioural problems, 8 percent had sleeping or toileting problems, 7 percent were withdrawn or isolated, and 16 percent were simply unsettled or tearful. A few of the children had sought support from their siblings. The patterns of boys' and girls' responses were much the same.

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[11] Throughout the text of this report, we refer to the people who identified themselves as the child's main caregiver as parents, though a small number were guardians (4).

[12] The answers were to an open-ended question.

Child Development and Health

We asked the children's parents a few questions about the child's development. Just over half said there had been no problems before, during, or after their child's birth. A quarter had had birth trauma. Thirteen percent of the mothers had had health problems, and 8 percent of the children feeding problems or colic. Seven percent of the babies were born prematurely. Eight percent of the children had asthma, croup, or allergies, and 4 percent many minor health problems. Five percent of the children had needed operations around the time of their birth. Other problems mentioned were hearing problems, congenital problems and slow growth (4 percent each), and intellectual disabilities (2 percent).

Two-thirds of the children in the sample first started walking between the age of 10 and 13 months. The average age of first walking was 12.2 months. Three percent started walking between 6 to 8 months, 8 percent at 9 months, 13 percent at 14 to 15 months, and 8 percent between 16 and 42 months.

It was harder for parents to remember when their child had said his or her first words: 18 percent could not give us a time to the nearest month. The average age for those who could was 11.54 months. Nine percent of the parents who gave a time estimated that their child had first spoken when between 3 and 6 months old, 30 percent estimated 7 to 9 months, another 30 percent between 10 and 12 months, 14 percent 13 to 15 months, 9 percent between 16 and 18 months, 5 percent between 19 and 24 months old, and 2 percent gave the age between 25 and 30 months.

Almost half the children were described as being in excellent or very good health (48 percent). Forty-six percent had good overall health. Five percent of the children were described as having only fair health, and only 1 percent as being in poor health. Children who had had problems at birth were more likely than others not to fit into the "excellent/very good health" group: 38 percent compared with 58 percent of those without any birth problems.

A third of those with poor-to-good health had had an illness or accident requiring hospitalisation, compared with 18 percent of those with excellent/very good health. Eight percent of the poor-to-good health group had a congenital problem requiring specialist aid, compared with 3 percent of those in the excellent/very good health group.

The main health problems mentioned by those who described their child's health as poor, fair, or good were: chronic illness (a third) and ear infections or frequent colds (a half). A fifth suffered from chronic allergies. Eleven percent were on medication, and 6 percent "caught everything going". Four percent either took a long time to recover from any illness, or were lacking energy and listless.

The boys in our sample were more likely to have a congenital problem requiring specialist help: 8 percent, compared with 3 percent of females. They were twice as likely to have chronic allergies: 15 percent, compared with 7 percent for girls. But their general health was similar.

A third of the children had had at least one serious illness or accident, or had spent more than 2 days in hospital. The incidence of serious illness, accident, or hospitalisation was associated with household income: while 46 percent of those in families with household incomes of $20,000 or less were affected thus, the incidence almost halved (to 24 percent) for those with household incomes of $60,000 or more. Pacific Island children also showed a higher incidence of serious ill health: 48 percent, as did those from sole parents: 40 percent.

A quarter of our study children were in contact with a specialist or therapist at the time of the interview. The main reasons were to monitor hearing, physical development, speech or language, or to manage allergies.

Ninety percent of our sample had had their hearing checked by the time we talked to their parents as the children neared the age of 5. The majority had had their hearing checked within the last year. Twenty percent had had their hearing checked more than a year previously. This might indicate that hearing checks are a once-only event in New Zealand children's preschool life. No problems were detected in the hearing checks for most of the children. Twenty-two children were having a hearing problem monitored, and 15 had had their problem corrected. Five had suffered mild hearing loss by this age, and a further 5 children moderate-to-severe hearing loss. Thus the hearing tests appeared to be picking up (or confirming) problems for 17 percent of those who had had them.

The children were less likely to have their vision checked: 70 percent had been tested. Maori children in the study fell substantially below this level: only 45 percent. Again, most of this checking was done in the child's fourth year. A fifth of the children had had their vision checked before that age. Seventeen children were having a vision problem monitored, and 6 had had the problem corrected. Ten of the children were now wearing glasses or contact lenses. The vision tests were picking up (or confirming) sight problems for 15 percent of those who had had them.

To see whether there was any association between children's health status as described by parents and their ECS attendance, choice of ECS, and home activities, we divided the children between those whose health was described as excellent or very good, and those described as good, fair, or poor.[13] Only one difference, and that marginal, was found between the 2 groups. Those with excellent or very good health were marginally more likely than others to engage in sociodramatic activities as a family (12 percent, compared with 6 percent).

Children's Character

We asked parents "what sort of child is . . . usually?" Ninety-five percent described at least one strength, 61 percent a strength which was useful in some circumstances, but not others, and 43 percent a weakness.

Parental perceptions of their children were associated with social differences in some key areas. Language stands out: a positive description of their child's language capability came from only 49 percent of those from the lowest income households, compared with 61 percent over all, and a poor rating was given by 7 percent of the lowest income group, compared with 1 percent of those in the highest income households. The lowest income group was also most likely to find their child too dependent or independent—22 percent compared with 10 percent of those in the highest income group. This may reflect differences in parental values as much as any differences in character or competence.

Pacific Island parents were more likely than others to mention good physical skills (67 percent). Sole parents were more likely than 2-parent household parents to report good social-emotional skills (90 percent), and less likely to mention good language/thinking skills (45 percent).

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[13] This division of children's health status into 2 categories rather than 3 was done because of the small nunber of children with only fair or poor health: 18.

Table 14

Parents' Portrayals of Their Children

Trait	(N = 307) %
Strengths	
Good social/emotional skills	79
Good language/thinking skills	61
Independent	43
Good physical skills	42
Happy, confident	37
Imaginative, creative	22
Helpful	12
Good musician/dancer	11
Neutral (both strengths and weaknesses)	
Sensitive/shy	24
Strong-willed	23
Reasonable social/emotional skills	16
Boisterous, sometimes rough	14
Organiser, sometimes bossy	12
Weaknesses	
Poor social/emotional skills	27
Too independent or dependent	15
Spoilt	4
Impatient	4
Poor language/thinking skills	3
Poor physical skills	3

We used the 3 groupings in the table above (strength; neutral trait; weakness) to see whether these differences were statistically related to children's home activities, family activities, ECS attendance, and choice of ECS. There were no differences apparent, which could indicate that differences in children's character do not translate into differences in these spheres. Or the lack of associations may simply indicate that our question or the grouping of answers were too loose to be useful for analytic purposes.

Summary

Most of the children in our study experienced some change in their lives, whether of home, family members, or in their living standards. Change was not new to them, nor alien: something that is often forgotten. But their experiences were different—mainly according to the overall household income level, and whether or not their family was intact, and included 1 or 2 parents. Health—or rather ill health—was clearly associated with household income, and (almost therefore, since most of the sole parents in our study were in the lowest income group), with sole-parent families.

CHAPTER 4

FAMILY RESOURCES

Family Composition

Just over a third of our children lived in households with 4 people in them. Forty percent were living in households with 5 or 6 members in them. Six percent were living in households ranging from 7 to 15 members, and, at the lower end, 3 percent were living in 2-person households, and 15 percent were living in 3-person households. Almost half the Pacific Island children lived in households with 6 or more people, as did 30 percent of Maori and 20 percent of Pakeha/European.

Three-quarters of our children were living in 2-parent families. Another 6 percent were living with both parents and other extended family members. Thirteen percent were living in sole-parent households, and another 3 percent were living in sole-parent households with other members of the family. Four of our children were living with guardians.

Family Income

We asked parents or guardians to indicate the pre-tax income bracket (displayed on a card) which fitted their family.

Table 15

Family Income

Bracket	N = 307	%
Over $80,001	38	12
$70,001–$80,000 per year	20	7
$60,001–$70,000 per year	29	9
$50,001–$60,000 per year	35	11
$40,001–$50,000 per year	43	14
$30,001–$40,000 per year	52	17
$25,001–$30,000 per year	16	5
$20,001–$25,000 per year	13	4
$15,001–$20,000 per year	19	6
$10,001–$15,000 per year	34	11
$ 7,501–$10,000 per year	1	0
$ 2,001–$ 7,501 per year	1	0
Refused	2	1
Do not know/cannot remember	4	1

Three-quarters of the sole-parent households had annual incomes of $20,000 or less, compared with 7 percent of the 2-parent households. Housing took half or more of their income for 38 percent of the sole-parent families, compared with 24 percent of 2-parent households. Sole-parent families were generally paying more of their income for housing, even though they had fewer members: 30 percent had 4 or more members compared with 90 percent of 2-parent families.

Only 11 percent of those with household incomes in the highest bracket spent half or more of their gross income on housing, compared with 29 percent of those in the middle-income bracket, and 38 percent of those in the low-income brackets.

Salary or wages were the main income source for 70 percent of the study families. Twenty percent were self-employed. Eighteen percent received a state benefit, and 15 percent, family support. Twenty-eight percent of the families relied on more than one source of income.

Almost half of those in the $20–30,000 bracket received government funding, through family support funds or a state benefit. State benefits were the dominant income source for the lowest income group (84 percent). Fifty-five percent also relied on family support. Wages or salary were a major source for 22 percent, and 4 percent had income from self-employment.

Not surprisingly, since three-quarters of the sole parents fell into the lowest income bracket, state benefits were the major source of their family income: 73 percent. Forty-eight percent also received family support. Forty percent gave salary or wages as their main source of income, and 3 percent self-employment.

Proportions of wages and salary or self-employment as major income sources were comparable across ethnic groups. Fifty-two percent of the Maori and Pacific Island families in our study received family support or a state benefit, compared with 31 percent of the Pakeha/European families.

There was some association between receipt of a benefit and mother's education: 27 percent of those with no school qualification or school certificate received a state benefit, compared with 10 percent of others.

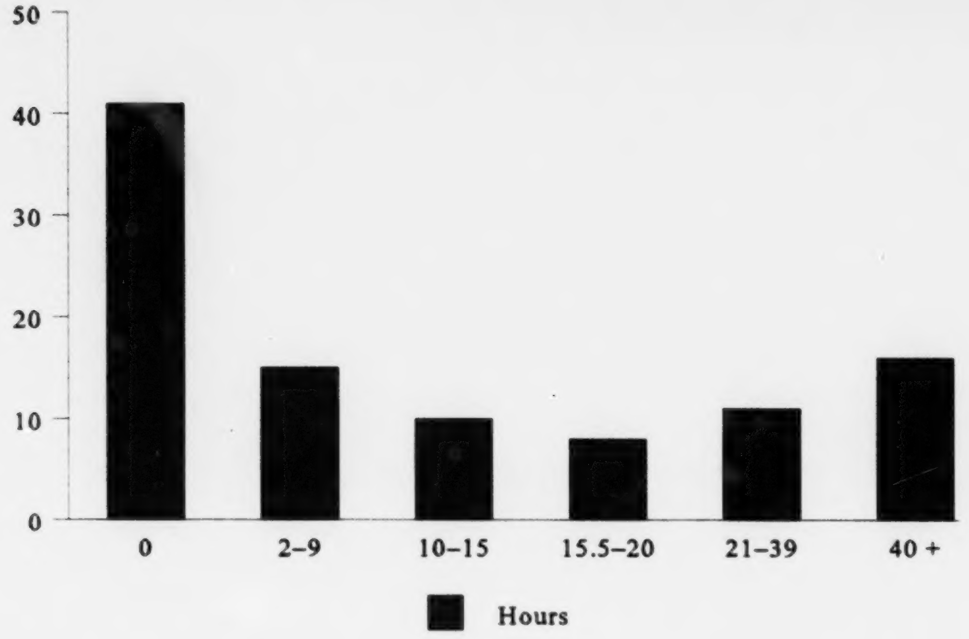
The spread of family incomes is quite wide, especially given the higher proportion of income going to ensure housing for those in the lower income brackets. The gaps between family income levels have implications for the resources available to children, and, as we shall see, their levels of achievement in 7 of the 10 competency measures.

Parental Work

Fifty-nine percent of the main caregivers (usually mothers) in our study were in paid employment: 19 percent in full-time, 40 percent in part-time or casual employment. Those in full-time employment worked on average 40 hours a week; two-thirds of the full-time main caregivers in paid employment worked between 30–50 hours a week. Part-time or casual workers put in an average of 14.6 hours a week, with two-thirds of them working between 5 and 24 hours per week.

Figure 3

Main Caregiving Parent's Hours of Paid Employment as Sample Child Nears 5 Years of Age



Not surprisingly, the clearest association between our family characteristics and the main caregiving parent's paid-employment status was with family income. Seventy-one percent of those in the lowest income group were not in paid employment. Those who were employed worked part time or casually.

To turn the figures around and analyse family income by the main caregiving parent's paid-work status, 41 percent of those who were not in paid work were in the low-income groups, 26 percent of those working part time, and 9 percent of those working full time. While employment of a family's main caregiving parent is clearly related to family income, it is not a guarantee of boosting family income beyond $30,000. The full-time employment rate amongst those families earning over $60,000 was 28 percent, compared with 21 percent amongst those whose family income was between $30–60,000.

There was no relationship between paid-work status and the mother's school qualification, or ethnicity.

Just over half the sole parents were not working: 53 percent, compared with 39 percent of mothers from 2-parent families. However, 23 percent of sole parents were working full time, and 18 percent of the main caregiving parents in 2-parent families. It is the take-up of *part-time or casual* work which differentiates the 2 groups. This may reflect the ability of 2-parent families to alternate caregivers as well as the disincentive for part-time work provided by high marginal costs for mothers receiving the domestic purposes benefit.

Half the main caregivers in paid employment worked irregular hours or shift work. Those working full time were more likely to be working shift work or irregular hours, 64 percent compared with 46 percent of those with part-time or casual paid work.

Given that 80 percent of the main caregiving parents were at home with their children during the day (65 percent all the time, 16 percent part of the time), this would indicate that the hours of work were chosen to fit around the children's waking hours, or availability of the other partner for childcare.

Ninety percent of the male partners of the 2-parent families were in paid work full time, and 4 percent part time. Their average time worked was 47.3 hours per week. Nine of the men had more than one job. This is in contrast to the number of women with more than one job: 31.

Most of those partners who were employed worked some irregular hours, long hours, or shift work.

Six percent of the partners were without paid work. Nine of the 2-parent families had no parent in paid employment, and 4 had both parents working part time or in temporary jobs.

The next table shows the kind of work done by parents before their first child's birth, and their present work. While some men shifted upwards in terms of work level and pay, and more are unemployed, the proportion of women in unskilled work has slightly increased, despite the sizable number not presently in paid employment.

Table 16

Parents' Paid Work

	Female (N = 307)		Male (N = 260)	
	Before birth first child %	Present %	Before birth first child %	Present %
Professional	30	17	32	42
Skilled/trades	54	26	54	41
Unskilled	12	16	17	10
None	4	41	1	6

The next table of answers to an open-ended question shows that most of the mothers working were positive about the effects of their paid work. However, their main concern was the effect on their child, and almost a fifth thought that there was some negative impact on their relationship with their child from their undertaking paid work. A fifth could see no relationship between their paid work and their family life.

Table 17

Mothers' Views of the Effects of Their Paid Work

(N = 175) Effect	Positive %	Negative %
For whole family	33	6
For sample child	26	13
For parent	18	9
For parent/child relationship	13	19
For parent's partner	10	1

Analysis of main caregiver views about the benefits and costs (or negative effects) of their being in paid work showed that, while those with low family incomes saw fewer costs (10 percent compared with 26 percent for those with middle or high incomes), they also found fewer benefits (20 percent of the whole sample compared with 33 percent of those in the middle-income bracket, and 48 percent of those with high family incomes). This may simply reflect the fact that fewer mothers were working in the lower income brackets.

One hundred and twenty-five mothers were not in paid work at the time of our interview. Almost half of these simply preferred to be at home rather than working, and 42 percent gave their children as the reason why they were not in paid work. Fifteen percent of the women cited outside reasons: lack of work, lack of early childhood services, or lack of their own suitable qualifications or experience to get work. Six percent of the women were studying. The next table shows mothers' volunteered views on the effects of their being at home during the day. This includes women who were in the paid workforce either full or part time.

Table 18

Mothers' Views of the Effects of Their Being at Home During the Day

(N = 209)

Effect	Positive %	Negative %
For sample child	57	1
For parent/child relationship	52	4
For whole family	17	1
For parent	14	5
For parent's partner	2	0

The prime beneficiaries of mothers staying at home are the child and, contributing to the child's well-being, the mother's relationship with the child. By contrast, table 17 showed that paid work is valued most for its benefits for the whole family as well as the child.

The only association between these views and family characteristics was that sole parents found fewer benefits over all in their being at home during the day than main caregivers from 2-parent families (48 percent compared with 66 percent). This may well be linked to the very low family income for this group, and the absence of another adult to share the continual demands of parenting.

Parental Education

Though both men and women had much the same length of schooling, a higher proportion of the women in the study had no school qualification. Post-school, the expected patterns of more men having a trades qualification, and conversely more women having teaching or nursing qualifications, were found. Otherwise, the patterns for women and men in our study were much the same. But women were twice as likely as men to have gained qualifications through non-formal education, such as community courses or playcentre training.

Table 19

Parental Education

Level	Female (N = 307) %	Male (N = 260) %
Years of School		
Up to Form 4	10	8
Form 5	30	31
Form 6	31	26
Form 7	29	31
School Qualifications		
None	18	6
School certificate	26	23
UE/6th form certificate	27	26
Bursary/scholarship/higher leaving certificate	26	27
Post-school Qualifications		
None	23	19
Trades certificate	5	15
Teachers/nurses certificate/diploma	14	3
Technicians certificate/NZ certificate/diploma	6	9
Undergraduate certificate/diploma	2	1
Bachelor's degree	16	17
Postgraduate degree	4	0
Other qualifications (including community courses)	20	9
On the job/in-house training	16	20

We asked our main caregiving parents whether they had had a chance to receive as much education as they wanted. Not surprisingly, lack of opportunity was most pronounced for those with no school qualification: 38 percent. This was close to the 33 percent of those who had achieved only school certificate. Fifteen percent of those with seventh form qualifications and 23 percent of those with UE also felt they had not had as much education as they would have liked.

A third of those with a family income of less than $30,000 also felt they had not received as much education as they had wanted, compared with 21 percent of those with higher incomes.

There was also a strong association with ethnicity. While 48 percent of the Pacific Island main caregiving parents felt they had not received as much education as they wanted, and 36 percent of Maori, only 22 percent of Pakeha/European felt a lack. Family type was not associated with a sense of educational deprivation.

The family characteristics associated with such a sense of lack of opportunity also emerge in different lengths of schooling.

Table 20

Main Caregivers' Length of Schooling

Family Characteristic	Fourth form (N = 32) %	Fifth form (N = 91) %	Sixth form (N = 94) %	Seventh form (N = 90) %
Household Income				
More than $60,000	**3**	**14**	38	**45**
$30–60,000	11	29	33	29
$20–30,000	14	45	28	14
Less than $20,000	18	47	**18**	16
Ethnicity				
Pakeha/European	11	**28**	30	**31**
Maori	16	39	29	16
Pacific Island	14	43	38	5
Family Type				
Two parent	10	28	33	30
Sole parent	15	38	23	25

Twenty-four percent of the main caregiving parents were studying for a qualification at the time of our interview. This proportion was similar for all income categories and ethnic backgrounds. But women with no school qualification were less likely to be studying than others: 15 percent. Sole parents were more likely to be studying, 35 percent, than women in 2-parent families, 20 percent.

Parents' Educational Ambitions for Their Children

Three-quarters of the parents said they wanted their child to go as far in their education as they wanted to. Twenty-nine percent specifically mentioned completion of tertiary study. Only 6 percent thought the end of secondary school was sufficient education for their child to receive. We asked whether there was anything which might stop their child from receiving the education they thought was desirable. Money was the main reason mentioned by 49 percent of our parents. Twenty-three percent mentioned the child's own desire. Seven to 9 percent each mentioned government policy change, or the child's temperament or attitude. Four percent mentioned health-related problems. One to 2 percent mentioned family problems, inappropriate curriculum or unresponsive teachers, the child's limited ability, or possibility of pregnancy.

Primary and Secondary School Choice

Ninety-three percent of the parents had decided which primary school their child would go to when they turned 5. A further 4 percent were considering 2 or more schools at the time of our interview. We asked for their reasons in making their choice of primary school, in an open-ended question.

Half the parents cited the proximity of the school to their own home. Educational reputation was important to 42 percent. The next group of reasons mentioned by 10 to 15 percent were: type of school, school programme, school facilities, or approach to children's behaviour and discipline. Ten percent mentioned either the social mix of the school, or its size. Only 5 parents felt they had no choice of primary school.

To decide which was the *deciding* factor in their choice of school, we asked them to give us just one factor. Sixty-eight percent could narrow their choice down to one decisive factor, but 22 percent said multiple factors were involved. Indeed, we found that a third gave us more than 2 reasons. Reputation became the most important *deciding* factor: 31 percent. Location became less important: 19 percent. The same constellation of discipline, school type, and programme was again mentioned by 9 to 11 percent, and school mix or size had much the same proportion as before. School facilities dropped down to 5 percent.

Just over a third of the study parents had decided on their child's secondary school (37 percent), and 6 percent were considering 2 or more schools. And while 61 percent of parents said that the final decision about which secondary school their child would attend would be made by themselves, 33 percent said it would be made by the parents and child together, and 5 percent by the child alone. Only 1 percent felt they had no choice of secondary school.

The next table sets out the reasons for both primary and secondary school choice given by study parents. We have included here both the initial reasons volunteered, and parents' selection of the most important factor for them (in bold type). While many parents could narrow it down to one factor for primary school choice, they found it harder to do so in analysing their reasons for choosing a secondary school for their child.

Table 21
Factors in Parental Choice of Schools

Factor	Primary (N = 307) %	 Most important %	Secondary % of those already decided (N = 115) %	 Most important %
Reputation	42	**32**	63	**59**
Previous family attendance	52	**19**	41	**14**
Proximity to home	52	**19**	48	**10**
School/class size	10	**12**	9	**3**
Curriculum/activities	14	**11**	14	**23**
Discipline/school climate	11	**11**	11	**15**
School type	15	**9**	32	**7**
School facilities	10	**5**	10	**4**
Cost	1	**0**	5	**1**

What is striking about the reasons given here is that although location and previous family attendance are high in reasons thought about, their weight decreases markedly when it comes to the most important decision, at both primary and secondary levels. The most important reasons are similar between primary and secondary school: reputation, previous family attendance, and proximity to home. Curriculum or school activities carry more weight in secondary school choice, and vice versa for school and class size (this may reflect the higher class sizes in primary schools). Cost is not a decisive factor, which indicates the strength of historic and present government involvement in school resourcing.

The fact that school reputation rather than differences in curriculum or activity carries most weight at both levels raises some interesting questions about the exercise of parental or family choice of school. It would appear that it is the quality of what is on offer—or the perceived quality—which matters to parents, not diversity of choice. This would seem to indicate that educational policies which make parental choice the fulcrum of decisions on resourcing and access will not necessarily encourage new curricula or teaching approaches. Instead, parents would be competing amongst themselves for entry into those schools with the best reputations, creating many more losers than winners.

But there are some differences in the weight given to reputation associated with mother's education and family income. School reputation was less important for those with no school qualification than others (rising from 22 percent to 41 percent of those with bursary/HSC for primary school, and from 43 percent to 67 percent on choice of secondary school).

A similar pattern showed itself in relation to family income—but for secondary school only (rising from 43 percent of low-income parents to 64 percent of those with high incomes).

Class or school size, and previous family attendance, were more important for sole parents than 2-parent families (23 percent compared with 10 percent, and 35 percent compared with 16 percent respectively).

Pacific Island parents were more concerned with primary-school type than others (29 percent compared with 3 percent Maori and 8 percent Pakeha/European).

Choice of ECS

As we shall see in more detail in chapter 7, choice of ECS at the 4-year-old level was also guided by the reputation of the ECS, and its suitable location—although for the ECS centre this could be closer to the parent's workplace than to the home. What is different about the reasons given for ECS choice and primary school choice are that different sets of reasons are given for different ECS types, and that cost, the ECS suiting the parents' needs, and opportunities for parental involvement or contact with other adults were also sizable factors in parental choice of early childhood educational setting for their child.

This comparison of reasons for parental choice at different levels of the education system points up the difference in government funding for schools and early childhood education. Early childhood education is more reliant on parental financial contributions. Its role in parental and family support is also more pronounced.

Parents' Views of Financial Responsibility for Tertiary Education

In the light of contemporary policy debate and decisions about increasing students' share of funding tertiary education, we were asked by the Ministry of Education to include a section on student payment of fees. Our study participants found this an awkward set of questions to answer. Nonetheless, there are some indications in their answers of both the role they see for the state in tertiary education, and their own belief in the value of education.

The dominant answer given to the question "what percentage of fees do you think students should pay?" was that it should be free (45 percent of the 227 who answered here). Another 7 percent said it should be minimal. Nineteen percent had no idea what percentage was realistic or appropriate. Ten percent said it depended on a student's income. Three percent felt it should depend on the course taken by the student, and 2 percent on the student's performance.

Seventy-two percent of the parents felt unable to answer our question on the percentage of fees they themselves would be able to pay after their child finished secondary school. Sums given by the remaining 28 percent ranged from 5 percent to 100 percent. The average for those who gave a percentage was 20 percent.

Thirty-eight percent of our families were already saving for their child's education. Six percent of the saving was done by grandparents. Three percent mentioned a family or tribal trust, and 2 percent an insurance or education scheme. Several referred to their general investments of savings, indicating that no specific sum was being set aside. The median figure set aside by the 69 families who were saving a regular and specific sum for their child's education was $30 a month. The range was from $4 to $280.

Half the high-income families were saving for their child's post-secondary education, compared with 22 percent of the low-income families. A quarter of sole parents were putting some money aside, and 40 percent of 2-parent families. These were the only significant associations between saving for post-secondary education and family characteristics. They indicate that if post-secondary education becomes more dependent on student financial contributions than government, access for children from low-income and sole-parent families is likely to suffer.

Ethnic and Language Background

English was the main language for all but 11 of the 307 study children. Nine children's main language was Samoan, one Tongan, and one Cantonese. English was the main language for 52 percent of the children from Pacific Island households.

Fourteen percent of the children spoke a second language and another 38 percent knew a few words or phrases. Maori was the most popular other language the children were acquainted with or spoke: 34 percent. Five percent knew a non-English European language, 4 percent English, 3 percent Samoan, 3 percent an Asian language, and 1 percent Cook Island Maori. A further 10 percent knew a third language: 3 percent more than a few words or phrases. These languages included Maori, Samoan, a European language, an Asian language, and Tongan.

The highest proportion of those with second-language knowledge was found amongst Pacific Island children, 67 percent. Two-thirds of these second languages were other Pacific Island languages. Nineteen percent of the Maori children knew another language, and 7 percent of Pakeha/European children. Sometimes this knowledge amounted to only a few words.

Family Support Systems

Most of the children in our study were in contact with their extended family. The parents of 51 percent of the children said that their extended family members played a large, regular part in their child's life. Another 6 percent said they played a large, but irregular, part, and 14 percent said their extended family played a small, regular part in the child's life.

Only 3 percent of the children had no contact with members of their extended family, though another 17 percent had only limited contact. Nine percent described their child's contact with their extended family as only a small part of their lives, and irregular.

Limited contact with their extended family because of geographical distance was more common for children from middle- and high-income families: 21 percent compared with 10 percent for low-income families. This pattern also shows in relation to mothers' education, with limited contact due to geographical distance rising from 15 percent of those with no school qualification to 26 percent of those with bursary/HSC.

The next table sets out some interesting differences in the people the main caregiving parent felt she or he would talk with if worried about the child, and those to whom she or he could turn for help if needing to go somewhere without the child. The answers were volunteered in response to an open-ended question.

Relatives, neighbours, and friends were more likely to be called upon for childcare than confidences of concern—and vice versa for partners. Over all, partners were less relied on than relatives, neighbours, and friends. Professional services such as ECS and health professionals were sources of advice; but ECSs were less likely to be mentioned as a likely place for unforeseen childcare needs.

Table 22

Main Caregivers' Sources of Support

Person	Discussing child if concerned (N = 307) %	Childcare if the main caregiver called away (N = 307) %
Partner	70	26
Friend/neighbour	45	65
Relatives/child's siblings	42	61
ECS	22	7
Health professional	15	0
Church member	1	1
No one	1	3

Quite naturally, few sole parents were likely to talk with their partner (10 percent; 2-parent families, 82 percent). Use of ECS staff to discuss a concern about the child was highest among those with the highest school qualifications: 32 percent, compared with 15 percent of those with no school qualification. Those with the highest school qualifications also relied more on friends or neighbours, 76 percent, compared with 46 percent of those without a qualification. The group with the highest school qualifications was also most likely to turn to friends or neighbours for urgent childcare.

Parents from different ethnic backgrounds also had different sources of help. Pacific Island parents turned to their partners more often than others if they could not take their child with them when they were going out: 52 percent; Pakeha/European 27 percent; and Maori 16 percent. They also made more use of their relatives: 81 percent; Pakeha/Europeans 60 percent; and Maori 52 percent. Only 14 percent of Pacific Island parents turned to a friend or neighbour, compared with 70 percent Pakeha/European, and 65 percent Maori. The only difference between sole- and 2-parent families in their patterns of support was that, while 29 percent of those from 2-parent families could turn to a partner, this was possible for only 5 percent of sole parents.

We asked the parents who would care for their child in the future if the child was sick, or the school closed for a day. Eighty-four percent indicated themselves. A fifth mentioned grandparents. Five percent mentioned friends and 6 percent the child's current ECS.

Relations Between Children and Non-custodial Parents

A fifth of the study children (N = 61) were living in families which no longer contained one of their original parents: 55 were without their father, and 6 without their mother. All of the latter still saw their mother and three-quarters of the children whose father was living separately remained in touch with him. Relations with the parent who was not in the household were good for half the children whose fathers were no longer with them, and for 4 of the 6 children whose mothers were no longer in the household. Only 4 of the 61 children concerned no longer got on well with the out-of-household parent.

Summary

The biggest differences in the family resources available to the study children were related to family income, and, linked to that, parental employment. Children from sole-parent families were likely to be from less well-resourced families in these terms than others.

Education was valued by the parents. Around a third of those with low or no school qualifications would have liked the chance for more education themselves; and a quarter were currently studying for a qualification, with a higher proportion of sole parents, but lowest for those without any school qualification—a disturbing indication that "second-chance" education cannot be relied on to substitute for failure or incompletion of schooling.

Only a few parents thought that their child's education should end with the completion of secondary school. Yet although current government policy is directed at increasing the student contribution to the up-front costs of tertiary education, only a quarter of the parents indicated the figure they were regularly saving for their child's future post-secondary education. These tended to be 2-parent families with high household income. If family savings are needed to ensure access to tertiary education, then children from low-income, sole-parent families are likely to miss out.

Parental reasons for the choice of both primary and secondary school were dominated by the schools' reputation. This mattered less for those with low household income, or without educational qualifications. A key rationale for putting parental choice of school at the centre of government educational policy is that competition will improve quality. However, our findings here would indicate that those who would pay most heed to reputation are not those who have been least well served by our education system; and they are consistent with the results from the Smithfield study and overseas research which show that schools with reputations are choosing children, not the other way round. Children from low-income families are the very ones who lose in such a system.

The emphasis on reputation rather than curriculum also raises questions about the validity of another assumption underlying the current policy emphasis on parental choice: that it will encourage innovation and diversity.

CHAPTER 5

CHILDREN'S HOME ACTIVITIES

While information about family income and parental education gives us some idea of home resources, home resources do not mechanically translate into children's experiences and activities. This chapter gives parents' descriptions of their child's home activities.

Home Activities

Reading

Home reading was a habitual experience for the study children. All the parents reported that someone read to their child. Some children had several people who would read to them. Ninety-seven percent of the study parents mentioned themselves, 40 percent one of the child's siblings, 34 percent a grandparent or other relative, 13 percent the children themselves, and 9 percent a family friend or neighbour. Twenty-two percent also mentioned the child's ESC.

Three-quarters of the parents said that somebody read to their child at least once a day, 22 percent several times a week, 2 percent once a week, and only 1 percent less than once a week. The next table shows some stark differences associated with income, ethnicity, and mother's education. Contrary to some stereotyping, there is no association with family type.

Table 23

Household Characteristics Associated With Home Reading With Study Children

Characteristic	At least once a day %
Household Income	
Over $60,000	89
$30–60,000	76
$20–30,000	41
Less than $20,000	62
Ethnicity	
Pakeha/European	78
Maori	58
Pacific Island	29
Asian	75
Family Type	
Two parent	74
Two parent extended	72
Sole parent	73
Mother's School Qualification	
No school qualification	49
School certificate	69
UE/sixth form certificate	83
Bursary/HSC	87

We asked about 5 specific reading activities. Ninety-four percent of the children were said by their parents to look at books by themselves, 91 percent to pretend to read, 89 percent asked for a favourite book to be read to them, 86 percent memorised favourite stories, and 75 percent knew that sounds matched letters. Our study children thus showed quite a high understanding of the nature of reading near the age of 5.

The reporting of letter-sound association was related to family income: it decreased from 81 percent of the high-income group to 62 percent of those in the lowest income group. Pacific Island children had generally lower levels of reading activities, apart from pretending to read, and looking at books, as the next table shows.

Table 24

Ethnicity and Children's Reading Activities

Activity	Pakeha/European (N = 260) %	Maori (N = 31) %	Pacific Island (N = 21) %
Memorising favourite stories	90	74	62
Asking for favourite books	92	84	67
Letter/sound association	77	71	57

Almost all the children (94 percent) could read their own first name. Fifty-eight percent of the children could also recognise other words. Most of these were family or friends' names. A quarter knew between 1 to 5 one-syllable words, and 5 percent could recognise 6 to 10 one-syllable words. Five percent could recognise more than 11 words, and 2 percent also knew their own address.

Reading of words other than the child's name increased with family income: 42 percent in the lowest income bracket to 68 percent of those in the highest income bracket. Those in the lowest income bracket were also least likely to be able to read family or friend's names (31 percent). Those in the highest income bracket were more likely to report that their child knew more than 11 words, but this was still comparatively rare (12 percent compared with 3 percent).

There were no significant variations related to ethnicity, mother's education, or family type.

Fifty-eight percent of the children also engaged in further reading activity. The main reading activities reported were that the children made up stories from pictures, asked about words, and recognised or read labels, brand names, or signs. Nine percent of the children were said to be reading. Another 9 percent were singing or chanting the alphabet, or looking at stories while they listened to audiotapes. Six percent liked to play at being the teacher, reading out or pretending to read out stories to an audience (often of other children or toys).

Children from families with incomes of over $30,000 were more likely to engage in these further home reading activities: 64 percent, compared with 38 percent of those in poorer households. Here there was also a difference associated with the mother's education: 49 percent of children with mothers with no school qualification engaged in further home reading activities rising to 67 percent of those with Bursary/HSC. There were no differences associated with ethnicity or family type.

Writing

Writing activities were also common amongst the study children. Almost all were writing or pretending to write their own names (94 percent), and 90 percent were writing or pretending to write lists, and letters to people. Seventy-one percent copied family members' names, and 78 percent asked how to write specific letters. Fifty-four percent got involved with computer/TV/video writing activity.

Children from low-income families were least likely to engage in all 5 of the writing activities asked about: 18 percent, compared with 31 percent in the middle-income bracket, and 41 percent for the high-income bracket. There were no significant differences associated with mother's education, child's ethnicity, or family type.

Children from low-income families were less likely to be reported copying family members' names, involved in computer/TV/video writing activities, or asking how specific letters were written. Their average amongst all 5 activities asked about was 66 percent, compared with 83 percent for children in the mid- to high-income brackets. Maori children were less likely than Pakeha/European children to ask how to write specific letters: 52 percent compared with 81 percent. There were no clear patterns here associated with mother's education or family type.

Thirty-nine percent of the parents mentioned other writing activities that the children did. Other home-writing activities were least likely to be reported by those from the lowest income households, 26 percent compared with 42 percent for others.

Nineteen percent of Maori parents mentioned further home-writing activities, compared with 40 percent Pakeha/European. The mother's education was also associated with differences in whether the child did other writing activities at home than the ones we asked specifically about: rising from 24 percent of those from homes where the mother had no school qualification to 49 percent of those with Bursary/HSC.

Thirteen percent of the children could write some letters of the alphabet. Children also used typewriters or computers (8 percent), played writing games (7 percent), wrote "in their own way" (8 percent), and made books (5 percent). Eleven percent of the parents said that they gave personal instruction to the children on writing.

Eighty-five percent of the parents felt children could write their own names (compare with the somewhat smaller proportion who could actually do this in our tasks, as reported in chapter 1, though the parents might have included copying in their perception of whether a child was writing), and 33 percent were reported as writing some other words. Again most of these were family or friends' names. Twelve percent could write up to 5 one-syllable words, 3 percent up to 10 one-syllable words, 14 percent could copy words, and 5 percent could write "a lot" of words.

Twenty-three percent of the children from households with incomes of less than $30,000 were reported by their parents as being unable to write their own name, compared with 7 percent of those in households with higher incomes. While 43 percent of those in the highest income bracket could write words other than their own name, the frequencies steadily decreased with decreases in family income to 24 percent in the lowest income bracket. In the lowest income bracket, only 4 percent could write up to 5 one-syllable words compared with 15 percent of children from higher income households, and 7 percent could copy some words, compared with 15 percent of those in other households.

Maori and Pacific Island parents were marginally less likely to report their child could write words other than their own name: 23 percent and 10 percent compared with 36 percent Pakeha/ European.

A similar pattern was evident in the writing of family or friends' names, reported for 30 percent Pakeha/European, 13 percent Maori, and 10 percent Pacific Island children.

Family type was associated with whether or not children could write their own name: 23 percent of those from sole-parent families could not, compared with 10 percent of those in 2-parent families.

While 5 percent of children whose mothers had the highest educational qualifications could not write their own name, this was slightly higher for others: 14 percent.

There were some marked differences in reading and writing activities between boys and girls, as the next table shows. However, the same proportion of boys and girls was reported to be able to actually read.

Table 25

Gender Differences in Children's Home Reading and Writing Activities

Activity	Female N = 140	Male N = 166
Reading		
Recognises family/friends' names	54	33
Reads 1–5 one-syllable words	29	19
Makes up stories from pictures in book	27	11
Recognises signs/brands	4	14
Plays teacher	12	1
Writing		
Writes/pretends to write lists, letters	98	83
Asks how to write specific letters	85	71
Copies family members' names	83	62
Writes family/friends' names	35	19
Plays writing games	9	5

There were marginal differences for receiving parental instruction (girls 12 percent, boys 5 percent), and pretending to write, or writing in the child's own idiosyncratic script (12 percent girls, 5 percent boys).

Looking at the reading and writing activities together, one can see that girls are taking more of an interest in the writing opportunities available to them at home, particularly the names of family and friends. This may lie behind the marginally higher number of girls receiving parental instruction than boys. It is interesting that boys were reported to have a sharper perception of letters in signs and brands outside the home. There were no differences between boys and girls relating to use of the computer, video, or television as a source of reading and writing activities.

Number Activities

Counting out loud was something that all but 2 of the children did. Ninety-five percent counted things, and could say how old they were. Eighty-three percent sang counting songs, and 82 percent would use numbers when they were helping their parents with cooking or housework. Seventy-eight percent could tell or tried to tell the time from clocks and watches around them, and 58 percent could talk about halves or quarters. Seventy-two percent would join in numerical activities on computer, television, or video.

Looking at the specific activities we asked about, there are some intriguing differences related to family income. Children from the highest income bracket were most likely to use numbers when cooking (87 percent; lowest income group 62 percent), to get involved with computer/TV/video activities involving number (81 percent; lowest income group 62 percent), and to talk about halves or quarters (70 percent; lowest income group 48 percent).

Children from sole-parent families were less likely to get involved with computer/TV/video numerical activities (58 percent compared with 75 percent 2-parent families). This may reflect the fact that only 25 percent of sole-parent households owned a computer, compared with 52 percent of 2-parent families.

There are no differences relating to gender for children's home numerical activities.

Just over half the children also did other things with numbers. Their parents described them adding or subtracting (19 percent), playing games or puzzles (14 percent), recognising numerals in books (18 percent), and knowing phone numbers (15 percent). Ten percent could recognise money denominations. Six percent of parents also spoke of an understanding of pattern, or the use of numbers to describe things that were happening. Only 1 percent mentioned multiplication.

Family characteristics were also clearly associated with parents' responses to our question about whether their child did anything else with numbers other than the 8 items we specifically asked about. The differences are shown in the next table.

Table 26

Association of Family Characteristics With Children's Home Numerical Activities

(N = 307) Family characteristic	Child does more than the 8 activities asked about %	Child does 2 or more additional number activities %
Household Income		
More than $60,000	69	45
$30–60,000	54	32
$20–30,000	48	21
Less than $20,000	**35**	**16**
Ethnicity		
Pakeha/European	54	12
Maori	45	13
Pacific Island	29	19
Family Type		
Two parent	56	33
Sole parent	45	**18**
Mother's School Qualification		
No school qualification	44	20
School Certificate	46	24
UE	56	29
Bursary/HSC	**65**	**62**

The ethnic and family type differences were not statistically significant.

It is interesting to note in this table that differences related to family income and mother's school qualification are present in both whether a child is reported to do more than 8 activities, and in how many they do.

Parents' Understanding of Their Children's Skill Acquisition

What role do parents see themselves as playing in their children's development of the more "academic" competencies? The next table sets out the answers to open-ended questions asked after we had asked about the child's activities in the "3Rs". Most parents gave us several sources, including the child's ECS. On the whole, they saw most learning as occurring informally. Patterns of learning were similar for all 3 areas, but computers, rhymes, and books were seen to play a larger part in numeracy acquisition.

Table 27

Parents' Views of How Their Children Acquired Literacy and Numeracy Skills

(N = 307) Method	Reading %	Writing %	Numeracy %
From parents—informal	52	44	62
Learnt through play	31	25	39
From ECS—informal	32	20	27
From parents—formal	24	26	22
From ECS—formal	20	17	21
Through computers	11	7	27
Picked up incidentally	8	6	10
Self taught	0	13	6
Rhymes/books	0	0	15
Not applicable—no skill yet	2	11	1

Those in the highest family income bracket were most likely to mention informal parental methods. They were least likely to mention formal ECS teaching. Those in the lowest income bracket were most likely to mention formal ECS teaching of their children.

Not surprisingly, the mother's education was also associated with different perceptions of how children learn. So, for example, 78 percent of those with Bursary/HSC mentioned informal parental methods for number, compared with 47 percent of those with no school qualification. Those with the higher school qualifications were most likely to mention informal ECS teaching: 35 percent, compared with 24 percent of those with no school qualification.

Pakeha/European parents were more likely to mention informal parental teaching methods, Maori formal ECS teaching, and Pacific Island parents more likely to report informal ECS teaching.

Sole parents put a greater stress on ECS teaching than 2-parent families.

These differences may indicate differences in parental perceptions of the role of the ECS, and differences in perceptions of what a learning activity may be. Fewer "academic" activities are seen to take place in the home environment by low-income parents with less school experience (and reward, in the form of a qualification).

Parental Response to Children's Difficulty With an Activity

To get some further indication of how parents see their role in children's learning, and their style of response to children, we asked the parents to tell us what they would do if they saw their child was having difficulty with an activity.

Thirty-nine percent of the parents would wait for the child to request help, and then show them how to complete the activity. Thirty-six percent would take the initiative themselves, and ask their child if they wanted help, and 21 percent would respond to behavioural cues such as expressions of frustration from the child. Four percent would wait for the child to request help, and then finish the project for them. Nineteen percent would help the child without waiting for the child to ask for help, or take the project over and finish it for the child. Only 3 percent would criticise the child or tell the child to give up and do something else.

Analysis by family characteristics showed 2 significant variations: parents without a school qualification were more likely than others to be critical or negative (7 percent compared with 1 percent), and Pacific Island parents were more likely to take the initiative (76 percent compared with 52 percent Pakeha/European).

Family Activities and Resources

Family resources are both material and experiential. We asked a series of questions to find out what access the study children had to a range of activities in which learning takes place, as well as the family's contact with the world beyond, through newspapers and magazines, and its ownership of appliances and transport. Our purpose here was not to quantify activities or ownership, but to gain some insight into the children's home experiences which might help interpret differences in children's competencies.

We asked parents to tell us "What sorts of things do you often do with (the child) as a family?" The average number of activities mentioned was 4. Three percent said they did not do much as a family.

Table 28

Family Activities With Study Children

Activity	(N = 307) %
Physical	90
Socialising with others	66
Routine housework	60
Exploration/special events	58
Literacy-related	38
TV/movies	28
Mathematics/science-related	24
Church/community	19
Animals	18
Eating out	15
Aesthetic-creative	14
Sociodramatic	9
Music/dance	9
Related to parents' work	7
ECS-related	5

Household income was associated with some key differences in the kinds of family activities reported by parents. While 51 percent of those in the highest income bracket reported a literacy-related activity, the average for other income groups was 31 percent. Children in families where the household income was $30,00 or more were more likely than lower income households to engage in exploration or go to special events: 63 percent compared with 45 percent, and less likely to participate in church or community activities: 16 percent compared with 27 percent. The households most likely to engage in sociodramatic activities or eating out were those in the income brackets of $20–30,000. They were also more likely to engage in ECS-related activities as a family.

In looking at the associations between family activity and ethnicity, we found different patterns for Pacific Island households. These families were twice as likely as others to watch television or go to the movies together, and 5 times as likely to engage in church or community activities (86 percent compared with an overall figure of 19 percent). They were also twice as likely to report music or dance activities, and eating out. They were less likely to report more informal social activities, exploration or special events, and sociodramatic or aesthetic-creative activities.

Our final analysis of whether differences in family activities were associated with family characteristics focused on the school education of the mothers. Here there were some quite stark differences, as the next table shows.

Table 29

Associations Between Mother's Education and Family Activities

Activity	No school qualification (N = 55) %	School Cert (N = 80) %	6th Form Cert/UE (N = 82) %	Bursary/Schol/HSC (N = 82) %
Physical	89	88	90	89
Socialising with others	**49**	74	70	67
Routine housework/ gardening	**42**	69	55	68
Exploration/special events	56	50	55	**71**
Literacy-related	**22**	36	33	**52**
TV/movies	26	31	22	30
Mathematics/science-related	**11**	30	21	29
Church/community	20	19	18	17
Animals	20	16	13	23
Eating out	13	16	13	16
Aesthetic-creative	**9**	15	13	18
Sociodramatic	**4**	6	9	16
Music/dance	**4**	9	13	9
Related to parents' work	6	10	6	6
ECS-related	4	4	2	**9**
Do not do much as family	4	3	4	4

While the low incidence of literacy-related activities in households where the mothers have no school qualification in comparison with other households is most striking, and one readily notes the lower incidence of other activities which could foster children's skills and expertise in academic areas, it is also worth noting that in these households there is also less experience of other people beyond the family, of activities such as gardening and housework (in which much knowledge and concept building can be experienced), and of exploration or special events.

Boys' parents were more likely to mention a mathematics- or science-related activity: 29 percent, compared with 19 percent for girls. Otherwise, the reported family activities were much the same for girls and boys.

Newspapers and Magazines in the Home

One other indicator of family contact with a wider world is receipt of a daily newspaper. Just over half our sample (55 percent) got a daily newspaper regularly. Two percent bought one only at weekends. Thirty-seven percent mentioned getting another paper—almost half of these a free community paper. Other papers received included middle brow and business (9 percent each), tabloid papers (7 percent), liberal newspapers or weeklies (5 percent), and religious papers (1 percent).

Table 30

Association of Family Characteristics With Receipt of Daily Newspaper and Magazines

Family characteristic	Daily paper received (N = 307) %	Magazines/journals received (N = 307) %
Household Income		
More than $60,000	76	44
$30–60,000	58	36
$20–30,000	41	**28**
Less than $20,000	**24**	**29**
Ethnicity		
Pakeha/European	56	**36**
Maori	48	45
Pacific Island	57	52
Family Type		
Two parent	60	36
Sole parent	**30**	28
Mother's School Qualification		
No school education	**46**	31
School certificate	**46**	35
UE	67	44
Bursary/HSC	62	37

Family income, family type, and mother's education are the family characteristics most associated with whether households are kept in touch with the world beyond through receipt of a daily newspaper. Free local papers formed a substantial part of the magazines or journals which were mentioned by the parents in our study. Work-related journals including the *National Business Review* and *Independent* were most likely to be taken by Pakeha/European, 2-parent families, and those with UE or a higher school qualification. Liberal papers such as the *Listener* or *Manchester Guardian* were most likely to be reported by the same group, other than 2-parent families.

Appliance Ownership

We read out to parents the list of appliances which has been used in IEA studies to gauge home resources. Only 3 of the families did not have a washing machine, 6 did not have a telephone, and 9 families were without a television. Stereo sets and videorecorders were also common (92 percent and 87 percent respectively). Where the differences came over all was in ownership of a second car (53 percent) and a computer (47 percent). However, the picture of almost universal ownership fragments somewhat when appliance ownership is looked at in the light of family characteristics.

Table 31

Association of Family Characteristics With Appliance Ownership

Family characteristic	Telephone (N = 307) %	Video (N = 307) %	Computer (N = 307) %	Second car (N = 307) %
Household Income				
More than $60,000	100	90	68	71
$30–60,000	100	91	46	55
$20–30,000	93	79	31	55
Less than $20,000	93	76	**26**	**24**
Ethnicity				
Pakeha/European	99	86	49	55
Maori	87	81	32	52
Pacific Island	91	71	10	38
Family Type				
Two parent	99	88	52	62
Sole parent	95	76	**25**	**8**
Mother's School Qualification				
No school qualification	93	84	**29**	**36**
School certificate	98	90	41	53
UE	100	88	52	61
Bursary/HSC	100	88	61	57

Family income, ethnicity, and family type are related to some important differences in the appliances owned by the study households. Telephone ownership, for example, is almost universal but where it is not, it is those who are Maori, on low incomes, without school qualifications, and/or sole-parent families who are without. The telephone is important for communication to and from the home. Video ownership allows the choice of materials, or the playing of "educational" material which may not be offered by television. Public transport is not well developed in New Zealand, so it is not surprising that there is a comparatively high incidence of second-car ownership. Two cars in a family allow more activities, such as getting children to and from extracurricular clubs, sports, and friends.

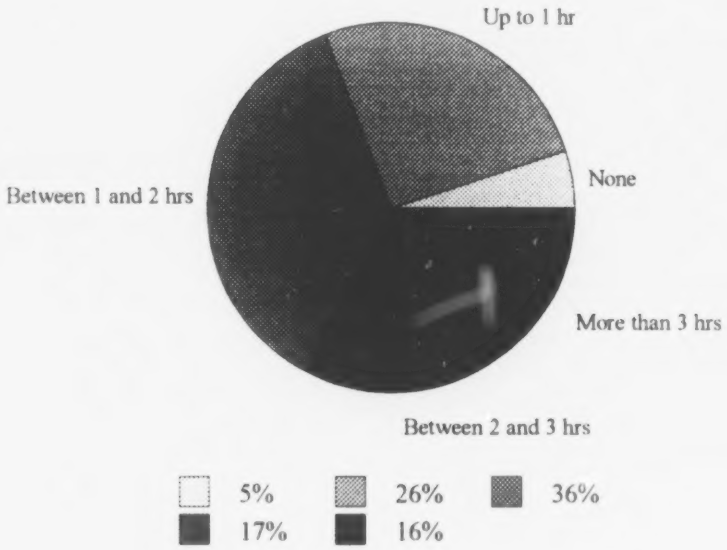
Computer ownership is probably the most glaring disparity in this table. Regression analysis shows that computer ownership is associated with the children's mathematical and motor skills. Again, the children who are behind others in our society in their access to what is becoming an important resource are those on low incomes, those whose parents do not have school qualifications, Maori and Pacific Island (particularly the latter), and those from sole-parent households.

Television Watching

Only 5 percent of the children in our sample watched no television at all. This is somewhat more than the percentage of households without a television, indicating family decisions on the value of television viewing for their children.

Figure 4

TV Watching on Weekdays



A third of the children watched more television on weekends than on weekdays, 42 percent less, and the rest about the same. Boys' and girls' patterns of TV/video watching were much the same.

Family characteristics affect television watching by children. The higher the income, the less television was watched: 24 percent of the highest-income-group children watched 2 or more hours of television on a weekday, compared with 30 percent of the children in the second-highest income bracket and 48 percent of those in the low-income brackets. Pacific Island children showed the highest number of hours of daily television watching: 62 percent watched 2 or more hours a day (Maori, 45 percent and Pakeha/European, 30 percent). A fifth of the children whose mothers had Bursary/HSC watched 2 or more hours of television a day, compared with 46 percent of those whose mothers had no school qualification. In our regression analysis, there was some negative association, albeit uneven, between the number of hours of television watched, and children's Early Mathematics.

We also asked the parents whether the pattern of weekday watching was the same as the weekend. While Pacific Island children did have a high number of hours on weekdays, 52 percent of the Pacific Island parents said they watched less television on weekends. This may reflect the high frequency of church and community activities reported by Pacific Island parents.

Family income, family type, and the mother's education had no association with changes between weekend and weekday television viewing by the study children.

Summary

In the last chapter we reported quite wide ranges of family incomes, and suggested differences in family income could make a difference to the family resources available to the study children. This chapter has shown that such differences do exist, both in the material resources available to children (most marked in computer ownership), and in the range of experiences available to them in and outside the home, including activities associated with literacy and numeracy. While there are some differences related to ethnicity, they are not large or always consistent. Family-type differences largely appear in those activities or resources which require money—and we have seen that sole families are disproportionately represented in the lowest income bracket.

The mother's education, which we saw in table 20 to be associated with family income, is also clearly associated with different patterns of family resources and activities.

CHAPTER 6

PATTERNS OF ECS USE

Total History of ECS Use

Very few international data are available on ECS patterns of use for individual families, over the whole period of a child's preschool life. Most studies of quality provide no information on children's previous ECS history. Our trial study brought home to us the complexity of children's ECS experience, and the difficulty of trying to gather comparable retrospective data from parents on each ECS experience. We did not attempt to do so in the study itself.

We have tried to set our material on children's current ECS in the context of their previous experience by gathering a total history of ECS use by the child, and by gathering more information on the child's first ECS experience, since Howes (1991) found children's relationship with their first childcare teacher to be more powerful in predicting social competence with peers than subsequent relations with ECS teachers—or the child's mother.

Total Duration of ECS Experience

Only two of the children in this study began their ECS experience after they turned 4. Two-fifths had first attended an ECS before they were 12 months old; another fifth between the ages of 12 and 23 months, a further fifth between the ages of 24 to 35 months, and 17 percent between 36 and 47 months old.

However, the total length or duration of a child's ECS experience could exceed their age because of "packaging", or the concurrent attendance at more than one ECS. Forty-five percent of the study children attended more than one ECS concurrently at some period before they turned 5.

The next table sets out the number of ECSs attended by the study children, sometimes simultaneously, in the light of family characteristics. Children's health status as reported by their parents did not show up in any different patterns of duration or attendance. What was most important was family income, family type, and, not unrelatedly, maternal employment. Children whose mother was in full-time paid work at the time of our interview were likely to have spent half as long again in ECS as children whose mothers were not in paid work, and a third as long again if she worked part time or casually. Children whose mothers were in full-time paid work when they were near the age of 5 were the children least likely to have attended only one ECS.

Table 32

Average Total Duration and Number of ECSs Attended by Study Children

Family characteristics	Average total duration Months %	1 ECS only %	2 ECS %	3 ECS %	4–6 ECS %
All Children		30	36	18	16
Household Income					
More than $60,000	60	25	33	22	**20**
$30–60,000	53	31	35	17	17
$20–30,000	41	**55**	24	10	10
Less than $20,000	46	24	**51**	16	9
Ethnicity					
Pakeha/European	53	29	36	19	**19**
Maori	47	32	48	10	10
Pacific Island	35	**67**	29	5	–
Family Type					
Two parent	51	**33**	35	17	15
Sole parent	51	15	48	23	15
Mother's School Qualification					
No school qualification	43	40	40	7	13
School certificate	45	31	44	14	11
UE	**60**	24	28	22	**25**
Bursary/HSC	**58**	26	37	24	13
Main Caregiver in Paid Work					
No	45	39	36	13	12
Part-time/casual	59	30	36	21	14
Full-time	**69**	**12**	40	21	**28**

Choice of ECS

Clearly, ECS experience has become part and parcel of the normal life of young New Zealanders. The diversity of New Zealand services has been lauded as meeting the needs of different children and families. More recently, as "choice" has been enthroned in educational policy making, the diversity has been lauded for encouraging competition between ECSs.

Not all ECSs are equally available, either in location, cost to families, or suitable hours. The next section focuses on the reasons parents gave us for their choice of their child's first ECS other than the one they were in at the time of the study, and then looks at the different patterns of attendance and cost related to different ECS types.

We asked parents a set of questions about their experience of and satisfaction with their child's first ECS, if there had been more than one in a sequence (N = 197), and the child's current ECS (N = 307).

The children were generally under 3 years old when they went to their first ECS. The 3 main types of ECS chosen were private care (24 percent of those attending a first ECS), childcare (23 percent), and playgroup (21 percent). Family Day Care was chosen by 11 percent of the children's parents. The average starting age for private care was 10.6 months, for childcare 21.8 months, playgroup 11.6 months, and for Family Day Care, 13.3 months.

The dominant reason for choice of a first ECS that was not the child's current ECS was that it was in a suitable location. The fact that it suited the parent's needs—and we shall see that paid employment was a major parental need at this age—the parental perception that the centre had a good reputation, or their positive experiences from a sibling's attendance, were also major reasons. Next came the cost of the ECS, and the quality of its facilities. The centre curriculum and the type of service were also important.

Only a few parents felt that they had had no choice about their child's first ECS—yet in making that choice, most of the parents had looked at one ECS only. If they looked at other ECS types, they were most likely to look at childcare. A few also looked at private care, kindergarten, Family Day Care, or a playgroup.

The main reason for moving on from the child's first ECS was that a more suitable option for child or parent—usually kindergarten or playcentre—became available. These are the lowest ECS cost options. Other major reasons were that the family shifted from the area, emphasising the importance of location in early childhood education choice; the centre closed, or staff at the centre left; cost; or the child going on to school.

Parental dissatisfaction with the first ECS was expressed by 16 parents (just over 10 percent of those whose children attended more than one ECS sequentially). Dissatisfied parents were found in every ECS type.

In looking at the reasons people gave for their choice of their child's first ECS, we find some interesting variations relating to the type of ECS. We find that for those choosing *childcare* the centre facilities and its reputation were very important. That it suited parents' needs, was in a good location for the parent, and offered a good programme, were also important.

In contrast, those choosing *private care* found cost, the carer's approach to managing children's behaviour, and the fact that the child would be with friends most important. Those choosing *Family Day Care* found the small numbers of children in the caregiver's home to be a prime attraction. Cost was also very important for Family Day Care choosers. Those choosing playgroups were most likely to feel they had chosen this option because there was no other available choice, though the numbers were not high.

In looking at what other ECSs were considered by parents, we found that those choosing private care were most likely to consider somebody else offering private care—choice *within* type—or childcare.

There were some differences relating to family characteristics in the hours spent at the first ECS. Children from sole-parent families had a higher average number of hours of ECS attendance than those from 2-parent families (17.09 hours, 12.69 hours). Attendance at any ECS was also related to family income: the average for those in the lowest family incomes was 10.21 hours, compared with an average of 17.36 hours for those in the highest income bracket.

Family income was also related to type of ECS chosen: those in the highest income bracket were twice as likely as others to choose childcare or private care; and those in the middle bracket were twice as likely as others to use playgroups.

Pacific Island families had the lowest average hours: 9.13, compared with 12.85 hours for Pakeha/European families, 14.47 for Maori families, and 28.8 for Asian families.

Parental perceptions of the effects on their child of the first ECS attended were similar across types, with the most frequent group care in this section, childcare, standing out in providing cognitive-language benefits (41 percent of childcare users compared with 27 percent of private care users, 24 percent of playgroup users, and 14 percent of Family Day Care); and in promoting positive independence: 44 percent compared with 17 percent of playgroup users, 9 percent of Family Day Care, and 8 percent of private care users.

Choice of Service at 4½- to 5-year Level

The dominant ECS in the attendance pattern of children nearing 5 in the study were group, rather than home-based, ECSs. We see more playcentres, kindergartens, and private preschools. The average starting age for playcentre was 13.3 months, much earlier than the other sessional group ECSs. For A'oga Amata the average starting age was 23.5 months. Private preschools' average starting age was 35 months. Kindergartens' average starting age was the highest in the study, 40.1 months.

There was also quite wide variation in the average hours of children's attendance in the study ECSs.[14]

Table 33

Current ECS

	Average hours per week	N = 307	%
Childcare	31.9	28	9
A'oga Amata	24.5	10	3
Private preschool	17.8	59	19
Family Day Care	16.8	24	8
Kindergarten	14.7	93	30
Playcentre	8.9	91	30

The main reasons given for parental choice of the child's current ECS (at the 4-year-old level) were the reputation of the centre (40 percent) and suitable location (35 percent).[15] Other reasons mentioned by 9 to 15 percent each were sibling attendance (present or past), opportunities for parental involvement or meeting other parents, the child's need to be with others of his or her own age, the centre's programme, the fact that it suited parental needs, the ECS approach to managing children's behaviour, the type of early childhood education service, and the quality of the centre's facilities. Cost was the deciding factor for 7 percent.

Only 5 percent felt they had not had any choice about which early childhood service the child attended. The predominant reason for the child ceasing to attend their current early childhood centre was starting school (96 percent).

Just over half the parents (54 percent) did not consider any other centre than the one they chose. The perception that one has a choice may be quite different from feeling the need to make the decision between two or more alternatives. Of those who did look at other alternatives, kindergarten attracted the most attention. Childcare, private preschools, and playcentres were also mentioned by 10 to 15 percent of those who had looked at other possibilities. Only 7 percent had looked at nannies.

What are the patterns of choice for the current ECS? The biggest factor in kindergarten choice is its location (53 percent). Reputation and personal reasons, including previous family attendance were also prominent (30 percent each). Personal reasons were prominent for parents choosing playcentre for their child (63 percent), along with reputation (48 percent) and location (33 percent).

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[14] This table does not include concurrent attendance, but only attendance at the ECS in our study sample.

[15] These reasons were given in response to an open-ended question.

Cost plays a large part for those choosing Family Day Care, as does the reputation of the ECS, and the small number of children in each home (24 percent each). Personal reasons, including previous family use (44 percent), and its suiting parental needs for work or study (40 percent) were the most substantial reasons however.

Reputation is the main reason for choice of a childcare centre (48 percent), followed by its suiting parental needs (24 percent).

Reputation is also to the forefront of the reasons for choosing private preschool (62 percent). Personal reasons were also important (46 percent), as were location (35 percent), and programme (31 percent).

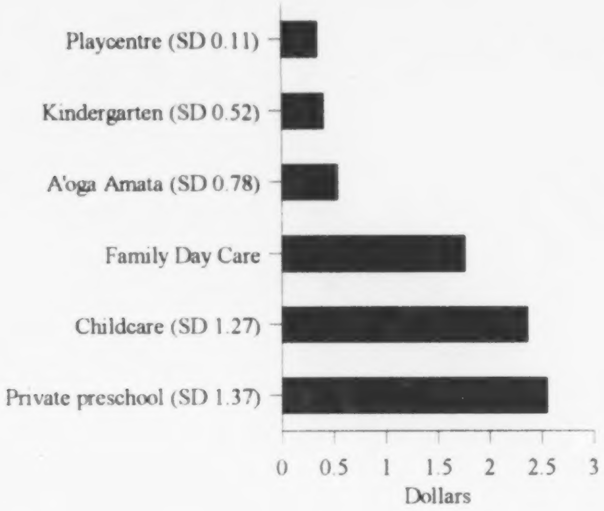
Most important to A'oga Amata parents were its cultural appropriateness, personal reasons, and its suiting parental needs.

Parents who considered but did not choose a playcentre, were most likely to choose kindergarten. A few also chose a private preschool, or another playcentre. In reverse, those who considered kindergarten were most likely also to consider and decide on playcentre, with a few considering another kindergarten or a creche.

Of the few in our sample who had considered te kohanga reo, but did not go there, most chose kindergarten. A slightly different pattern emerges when we look at those who considered private preschools. Those who considered them but did not choose them fell almost equally between going to playcentre, kindergarten—or another private preschool. It would seem that the choice for these parents was between different centres offering them a similar programme, rather than centres offering different programmes or times. Half of the 6 who considered having a nanny in the home opted in the end for private preschool.

Kindergarten and playcentre were the cheapest ECS options for parents. Kindergarten has historically been better funded than the other ECSs; it was also the flagship of government support for early childhood education until a decade ago, as a precursor to formal schooling, and there are more kindergartens. The voluntary ethos and parental involvement as teachers has been important for the development of playcentres. Private preschools were the most expensive sessional option for parents. For those parents seeking an all-day ECS, Family Day Care was on average 50 cents an hour cheaper for parents than childcare.

Figure 5
Average Current ECS Cost Per Hour



Not surprisingly, kindergarten and playcentre were the main ECSs used by low-income families in the study. And just under half of those who paid more than half of their family's income on housing went to kindergarten, with playcentres not far behind.

The ECSs least likely to be used by low-income children were private preschools.

Weekly costs for parents ranged from nil to $130. Looking only at average costs across all ECS types, we find that in general ECS costs to families reflect family income (with a steep rise between the brackets of less than $20,000 and above), ethnicity, and mother's paid-work status. The highest average ECS weekly costs were met by sole parents working part time or casually, though this may simply reflect the small number concerned (10).

Table 34

Average Cost Per Hour in Relation to Family Characteristics

Family characteristic	Average	SD
Household Income		
More than $60,000	1.64	1.67
$30–60,000	1.03	1.18
$20–30,000	1.15	1.13
Less than $20,000	0.52	0.77
Ethnicity		
Pakeha/European	1.11	1.33
Maori	0.82	1.18
Pacific Island	0.54	0.78
Mother in Paid Work		
Two parent - not in paid work	0.82	1.01
- part time/casual	1.10	1.4
- full time	1.93	1.49
Sole parent - not in paid work	0.57	0.78
- part time/casual	2.29	0.83
- full time	0.62	0.95

Kindergartens were the most even in their use by parents from different ethnic backgrounds: about a third of each of our 3 main categories of Pakeha/European, Maori, and Pacific Island, and 17 percent of Asian families. Playcentre also attracted around a third each of the Maori and Pakeha families in our study, and much the same proportion of Asian parents (18 percent), but fewer from Pacific Island families (10 percent). Childcare was also fairly evenly used by Pakeha/European, Maori, and Asian parents (10 percent each), but was not used by any Pacific Island family in the study.

Family Day Care attracted Pakeha/European and Asian parents, but no Maori or Pacific Island parents. Just under half (48 percent) of the Pacific Island children attended an A'oga Amata. A third of the Asian children attended a private preschool, 20 percent of the Pakeha/European, and 16 percent of the Maori children.

Children whose main caregiving parent worked full time were twice as likely as others to attend private preschool, childcare, or Family Day Care.

The higher the main caregiving parent's school qualification, the more likely it was that a child would attend childcare or playcentre. Conversely, a large proportion of women with no school qualification (44 percent) were using kindergarten compared with those with higher school qualifications (declining steadily to 17 percent of those with Bursary/HSC).

Children from 2-parent families were twice as likely as those from sole-parent families to attend playcentre or kindergarten; children from sole-parent families were twice as likely as children from 2-parent families to attend childcare or Family Day Care.

In looking at average hours per week spent at the current centre, 15.7 over all (a large SD of 8.44), we found some patterns of interest. Average hours rose with income from 14.71 hours where the family income was $20,000 or less per year to 17.3 hours for families earning over $60,000. Children from sole-parent families had a higher average time at the early childhood centre (18.38 hours per week), compared with children from 2-parent families (14.88). Asian families had the highest average hours per week at 28.83 hours, compared with Pacific Island children at 18.3, Maori at 16.4, and Pakeha with 15.22 hours average a week.

Children attending different ECSs also had different histories of previous attendance. None of the children attending the A'oga Amata as they neared 5 years of age had experienced any other ECS. Playcentre also had a high proportion of children who attended no other ECS at all, 58 percent. Twenty-nine percent of the kindergarten children had never been to another ECS before they came to kindergarten. Childcare, private preschools, and Family Day Care at this age had fewer children coming to them without previous ECS experience.

Playcentre children who had been to another ECS were most likely to have been to a playgroup or private care, followed by Family Day Care or childcare. Only 1 percent each had come from a different playcentre, or from kindergarten.

Nine percent of the kindergarten children had previously been to a playcentre, but none had attended another kindergarten. Kindergarten children were most likely to have had previous ECS experience in a playgroup, childcare, or private care.

Childcare or private care were also the 2 main previous ECS experiences for children currently attending private preschools, though 7 percent had come from another private preschool.

Childcare children also were more likely to have attended another ECS within the same type—18 percent. A quarter of this group came from Family Day Care. None came from playcentre or kindergarten.

Finally, Family Day Care children were most likely to have come from another Family Day Care, private care, or kindergarten (21 percent each).

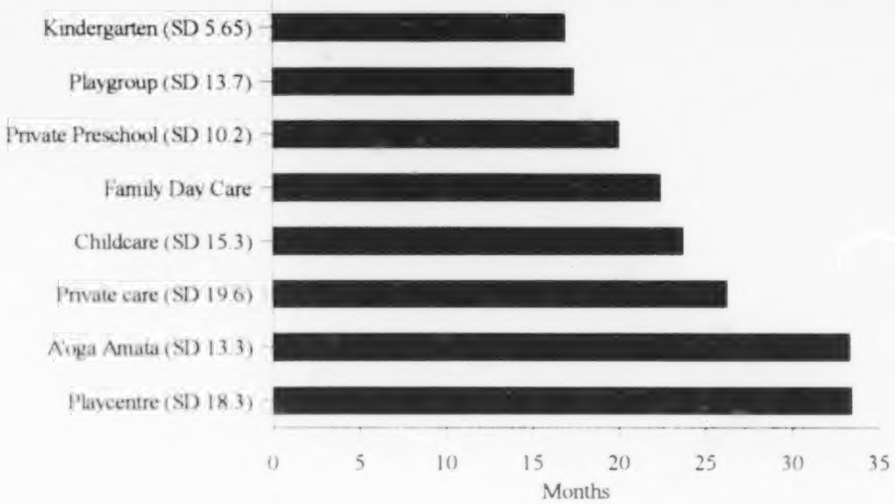
These different patterns give us another perspective on the nature of parental choice of ECS. Kindergarten and playcentre users were least likely to switch ECS within the same type, perhaps reflecting their location and cost. A'oga Amata were also most likely to provide older children with their first (and only) ECS experience.

Those with previous private care were as likely to go on to sessional care as childcare or Family Day Care; but those with Family Day Care were less likely to do so. They were more likely, as we shall see, to combine Family Day Care with sessional care in a concurrent package.

These different patterns of attendance for different ECS types are reflected in different lengths of attendance over all, as the next figure shows.

Figure 6

Average Duration in Different ECS Types



Given different durations according to the type of ECS attended, and different patterns of attendance related to family income, we looked at whether children from different income groups had different patterns of duration in each ECS type for which we had sufficient numbers of children in each type and income group to allow statistical analysis. The ECS with the most even duration in relation to family income was kindergarten.

Table 35

Average Duration of ECS Experience by Type and Family Income

ECS type	$20,000 or less (N = 55) mean duration months	$20,001–$30,000 (N = 29) mean duration months	$30,001– $60,000 (N = 130) mean duration months	$60,001 + (N = 87) mean duration months
Private care	22	20	26	29
Playgroup	12	10	19	20
Playcentre	32	29	33	38
Kindergarten	17	20	18	15

Problems Finding Suitable ECS

A fifth of the families in the study had had some problems finding a suitable ECS for their child. The main reasons were a lack of good-quality ECS, a long waiting list at the preferred ECS, and insufficient time available at the preferred ECS. Some families also mentioned a lack of information about what ECSs were available. These point to insufficient provision of ECSs for a substantial minority of our study parents.

It might be thought that women working full time in the paid workforce would have more difficulty finding suitable care and education for their children. However, this was not the case, though they were more likely to use a "package" (use more than one ECS concurrently). The family characteristics which did make a difference were the mother's school qualification, and ethnicity. The higher the school qualification, the more likely it was that a parent had had difficulty finding suitable care and education for their child—11 percent of those with no school qualification compared with 24 percent of those with university bursary or scholarship. Pakeha/European parents also indicated a greater level of problems than Maori or Pacific Island (20 percent compared with 11 percent each). However, Asian parents had the most problems—64 percent—though this might be by chance, given the low numbers in this group in our study (12).

Packaging

Just under half our sample said that they had used more than one early childhood service at the same time, a phenomenon we call "packaging". This is about the same proportion of packaging reported in the United States. Folk and Yi (1994) report a figure of 36–38 percent of preschool children with employed mothers. Shonkoff (1995) reports 1 in 3 infants experiencing at least 3 different ECS arrangements in their first year of life.

Virtually every ECS other than kohanga reo and A'oga Amata was combined with every other ECS to produce a wide variety of combinations. Most combinations involved 2 services, with 6 percent of the study families using 3 services concurrently. The dominant form of combination was home-care with group-care, 21 percent. Fourteen percent of the study families had combined 2 group-cares at some stage of the child's ECS experience. This compares with the patterns of sequential ECS attendance: 17 percent attended 2 or more group ECSs in sequence, and 8 percent went from home-care to group-care.

The next table shows that almost all the Family Day Care users in the study were packaging, and two-thirds of those were using private care.

Table 36

Main Packaging Arrangements

Involves	N (of arrangements) = 329	% of ECS type users
Family Day Care	45	96
Private care	65	68
Kindergarten	71	54
Childcare	62	50
Playcentre	40	31
Playgroup	22	31

Most of the triple arrangements were used in the younger age group, and involved Family Day Care, private care, playgroups, and playcentres; no kindergartens were used. Several children in the preschool age group attended a special-needs group, and some, language groups (e.g., Greek).

There are some differences between those who used more than one service at any one time and those who have not. More sole parents (65 percent) packaged than 2-parent families (45 percent). A higher proportion of those working full time also used more than one early childhood service at the same time: 72 percent compared with 52 percent of those main caregivers working part time, and 31 percent of those not engaged in paid work. This may account for the much higher proportion of packaging parents recording use of a first ECS (86 percent) compared with non-packaging parents (45 percent). We also found that those with no school qualification were the least likely to have a child attending more than one service at the same time (27 percent).

What were the reasons for parents using more than one arrangement? Most arrangements combine a low-cost and a high-cost option. The main reason given was to provide education and care while the parent worked or studied (46 percent). Time-out for the parents was important for 14 percent. Other notable reasons were that one of the early childhood services did not have long enough hours to match the parent's needs, or did not have enough time spare to take the child, (e.g., for part-time childcare), lacked activities the parent thought desirable for the child, and for the child's socioemotional development. Some parents also wanted the social opportunities provided by other ECSs for their child, and sometimes, themselves.

We asked parents whether they had had any problems using 2 or more services at the same time. A quarter of those packaging ECSs said they had experienced problems. The main problem was the child settling in; transport problems and conflict with other commitments for the family and child were also mentioned.

Cross tabulation shows some interesting differences relating to packaging and parental involvement in ECSs: 29 percent of packaging parents were not involved in their child's current ECS compared with 14 percent of non-packaging parents. This may reflect the high proportion of Family Day Care and private care amongst the packages, since both these ECSs have comparatively low parental involvement.

Packaging parents were as likely as others to feel they had enough opportunities to talk to staff, enough details from staff about their child's ECS experience, and to solve children's problems jointly with ECS staff. Health or self-care problems were slightly more likely to be worked at jointly (11 percent compared with 5 percent of non-packaging parents).

We did not, unfortunately, ask parents who were packaging whether they would have preferred to use only one service. However, packaging parents were twice as likely as others to report they had had difficulty in finding a suitable ECS for their child: 29 percent compared with 13 percent.

Some substantial questions are raised by the high incidence of packaging in New Zealand:

- Is affordability of ECS a major reason for packaging?
- Are ECS services fully responsive to parental and children's ECS needs?
- Can one ECS service provide a one-stop shop for every family?
- Does the high incidence of private and Family Day Care provision in packaging indicate that some families are using these home-based forms of ECS to operate as de facto extended families?

Those who were packaging were most likely to be in full-time paid work. If packaging has any negative consequences for children, these may be mitigated by the higher income of the family, and the mother's educational experience which, as we have seen, is reflected in children's home activities. Our statistical analysis showed no negative effects from packaging *per se*.

Another concern which has been raised about multiple use of early childhood services is "double dipping" in terms of state financial support. This is the first parental information we have had on the incidence in New Zealand of multiple use of early childhood services at one time. It is interesting to note that private care, which does not attract funding through the Ministry of Education, and is not tax deductible, is an important element of packaging.

The hours and the cost involved in ECS packaging also need to be taken into account. It is quite likely that a child attending childcare full time will receive more from state funding than a child who is attending both Family Day Care, and kindergarten sessions, particularly if several children are sharing one kindergarten place. The high proportion of Family Day Care children attending another service—as with those attending a private service provided by a relative or friend—indicates that such care might have a different meaning from other kinds of care, both to those who use it and those who provide it. For example, several Family Day Care providers with children of their own around this age in our study would take both children along to the local kindergarten.

Parents' Perceptions of the Effects of the ECS for Their Child

As with other parents, packaging parents of our study children felt very positive about their child's ECS experience. They also experienced benefits for themselves and their family as a whole.

The next table shows parents' responses to open-ended questions about the effects of their child's ECS attendance. The slightly lower figures for benefits of the first ECS may indicate that these have been washed out by further experience (but this did not apply to the negative effects noticed by parents), or may indicate the importance of parental paid work in decisions about a child's first ECS attendance.

Table 37

Parents' Perceptions of the Effects of Their Child's ECS for Their Child

Effect	First (N = 157) %	Current (N = 307) %
Positive		
Socioemotional	52	82
Cognitive/language	22	34
General	15	23
Independence	12	19
Motor skills	5	8
Cultural	4	6
Negative		
General	2	3
Independence	2	3
Difficulty adjusting	2	3
Parental concern re ECS quality	2	3
Cognitive/language	1	2
Socioemotional	1	2

Note: the question was open-ended, and more than one answer could be given. Only one parent could not identify any ECS effect, positive or negative.

Only 5 percent of the parents thought that their child's first or current ECS had had only negative impact. The rest who identified some negative effects also identified positive impacts as well. Seventy-one percent of the parents identified only positive effects for their child from the child's ECS experience.

However, when parents were asked "were there any (other) negative aspects for your child?" almost half the current ECS users (47 percent) identified some aspect, as did 37 percent of those describing their experiences of their child's first ECS. Possibly parents were making a distinction between "effect" as something enduring, and "aspect" as one of a number of elements in an experience.

Children's social experience, and their relations with other children at the ECS, was the aspect of their children's ECS experience of most concern to parents (19 percent at current ECS, 9 percent at first ECS). Other concerns identified by 5 to 7 percent each were: concerns about the quality of the ECS, the child's independence—or dependence—the child's difficulty in adjusting, and the quality of the child's language development. Four percent noted that the problem was small or merely initial. Only 3 percent of the parents felt their child was bored or had been at the ECS for too long. Other concerns mentioned by 1 to 2 percent each were that the ECS had too many children, made too many demands on parents, had different cultural values, or simply that it had been a negative experience.

Parents who were in the paid workforce were more likely to indicate that their child's early childhood education had had some negative aspects (31 percent of full-time paid workers, 24 percent part-time, and 19 percent of those not in the paid workforce). School qualifications also made a difference: 11 percent of those with no school qualification thought there were some negative aspects of their child's early childhood experience, compared with 39 percent of those with the highest school qualifications. This relationship with educational qualifications raises some questions. Does it mean that the higher the qualification, the more perceptive the parent, the more willing to raise concerns—or the more demanding? What does it mean for the consistency of ECS quality, or the benefits children experience from ECS, if policy for early childhood education funding, regulation, and access were to become even more based on parental choice?

Additional information on parental perceptions of their child's ECS comes from the reasons parents gave for their nomination of the ECS which had the greatest impact on their child. Parents often chose the ECS their child had most recently attended, so that a list of the main nominations is of little value. The reasons, however, are revealing.

The ECS programme or activities constituted the main reason for parental nomination of the ECS which had had the greatest impact on their child, 33 percent. Length of time spent by their child at the ECS was given by 21 percent. Staff quality, acquisition of social skills, and their child's enjoyment were put forward by 14 percent each. Twelve percent mentioned friends made by their child at the ECS, 9 percent their child's growing independence, 6 percent personal attention, and 3 percent the positive effect on their own parenting.

Those choosing the ECS with the greatest influence on their child on the basis of its programme or activities were most likely to nominate kindergarten, playcentre, or private preschool. Those nominating social-skills acquisition were most likely to mention kindergarten, childcare, or private care. Those nominating the length of time as the main reason, were most likely to nominate playcentre, and childcare. Quality of staff was most likely to be mentioned by those nominating private care, and childcare. The child's enjoyment was most likely to be nominated by those nominating private care, childcare, kindergarten, or private playschool. Personal attention was to the fore of those nominating Family Day Care.

Fourteen percent of those whose child had ever been to private care chose that as the most influential of their child's ECSs; 25 percent of the Family Day Care users chose Family Day Care; 30

percent of the playgroup users chose playgroup; 34 percent of the childcare users chose childcare; 57 percent of playcentre parents chose playcentre; 58 percent of the kindergarten users chose kindergarten; and 70 percent of the private preschool parents chose private preschool. The differences between playcentre, kindergarten, and private preschool were not statistically significant.

We do not have quality data on all the ECSs attended by the children, and thus the ability to make links between quality as judged in the light of the research literature, and parents' perception of lasting effects, cannot be explored. In identifying the ECS with the greatest impact on their child, parents appeared to be thinking of their child's most recent ECS, and perhaps the one with different activities from the home, or the ECS which brought them into contact with a number of other children. Looking at quality over all, it is interesting that private preschools have as high a proportion of parents identifying this as the most influential ECS their child attended as do playcentre and kindergarten, yet on the whole the latter had higher quality ratings than private preschools (chapter 9).

Parental Involvement in Their Child's ECS

Parental involvement with their children's education is regularly cited in the research literature as beneficial for children's educational progress. Fifty-two percent of the main caregivers in our study were involved in their child's first ECS, and 81 percent in their current ECS. The higher involvement in the current ECS reflects higher participation rates, but also the fact that more of the ECSs at this age provided group-care rather than home-care. Playcentres depend on voluntary input; and parental committees were vital to the kindergartens, the parent childcare co-operatives, and A'oga Amata.

Parent help with children's activities was the main form of involvement (31 percent first, 54 percent current). The main caregiving parents also served on committees (10 percent first, 37 percent current), and went with the children on outings (9 percent first, 37 percent current). Just under a quarter did some training or courses at the current ECS, much higher than the 5 percent at the first ECS. They also supported the ECS through fundraising (9 percent first, 35 percent current), working bees or cleaning (9 percent first, 29 percent current), and by making supplies (3 percent first, 16 percent current).

The next table shows the patterns of main caregiving parental involvement for each ECS type in the study. Some caution needs to be taken in using the A'oga Amata figures, since they are based on only 10 parents.

The ECSs with higher degrees of parental involvement were the group ECSs. The lower rate in this group of parent help amongst childcare users may reflect that ECS's high use by employed parents, and the fact that many childcare centres also cater for younger children. Family Day Care users had the lowest rates of parental involvement (9 percent). Seventy percent of childcare and 72 percent of private preschool users had some involvement in their child's current ECS, compared with 86 percent of kindergarten and 100 percent of playcentre parents.

Table 38

Parental Involvement in Current ECS

Type of involvement	Play-centre (N = 91) %	Kinder-garten (N = 91) %	Private preschool (N = 61) %	Childcare (N = 29) %	Family Day Care (N = 25) %	A'oga Amata (N = 10) %
Parent help	87	60	39	11	0	60
Committees	74	29	17	29	0	20
Fundraising	55	39	17	21	0	60
Trips and special events	56	31	41	21	4	30
Cleaning/work bees	52	27	7	32	0	50
Training	69	3	2	7	0	20
Supplies	33	7	7	21	0	10
ECS teacher/supervisor	31	0	3	7	0	40

Benefits From Parental Involvement in Their Child's ECS

Support, friendship, and company were the main benefits of parental involvement in their child's ECS (26 percent first, 41 percent current). The main caregiving parents also found enjoyment (11 percent first, 31 percent current), many gained a better understanding of their own children (14 percent first, 36 percent current), a sense of achievement (5 percent first, 21 percent current), the improvement of their own skills (6 percent first, 20 percent current), and a better understanding of the ECS programme (5 percent first, 19 percent current). The larger proportion of benefits reported for involvement in their child's current ECS is likely to reflect greater parental involvement in ECSs for older children, and in group-based ECSs.

A few reported either no benefits or a decrease in their own confidence (5 percent first, 7 percent current).

A lack of time is the main reason why main caregiving parents did not get involved in their child's ECS (47 percent first, compared with 8 percent at the 4-year-old level). Few felt they had not been encouraged to help (6 percent, 3 percent). Women working full time were most likely not to be involved in their child's ECS (36 percent compared with 13 percent of those not working, or working part time). Current study for a qualification did not decrease involvement.

The higher their school qualification, the more likely was parental participation (95 percent of those with bursary or scholarship compared with 80 percent of those with no qualifications). Sole parents had marginally less involvement: 28 percent compared with 14 percent of main caregivers from 2-parent families. This difference may be explained by their higher use of ECS types with lower rates of parental involvement.

Parental Use of Time While Child is at an Early Childhood Education Service

Paid work was the *main* use the mothers made of the time available to them while their child was in their first ECS (41 percent of those using a first ECS). Another major use was participation in the early childhood service itself (30 percent). The time was also used for house- or farm-work (18 percent), the mother's own interests (15 percent), and studying (6 percent). A few also did voluntary work, or visited friends or relatives.

A somewhat different pattern emerges with the current ECS. While paid work is still prominent (44 percent), the main use made of the time was to do house- or farm-work (55 percent). Many also looked after other children (31 percent). A quarter participated in the ECSs themselves. There was a slightly greater focus on the women's own interests (23 percent), and on visiting friends and relatives (12 percent). Six percent did voluntary work, and 7 percent studied.

These uses tell us that ECS supports family life and work as well as the development of the individual children attending.

Different patterns emerge for different early childhood services. For example, a main advantage offered by private care and Family Day Care is to allow parents to work (64 percent first, 66 percent current). This support is also prominent in childcare (41 percent first, 50 percent current), and private preschools (current 59 percent). Just over a third of the mothers at kindergarten were also working. By contrast virtually none of the Samoan mothers was working while their children were attending the A'oga Amata, and only a quarter of the playcentre mothers.

Playcentre and kindergarten mothers also used their child's time at the early childhood centre to look after other children in the family (41 percent and 42 percent respectively). Parents using private preschool also used the service for this reason, but at a lower rate, 24 percent. By contrast Family Day Care and childcare did not play this particular support role.

There were no differences between the centre types in terms of the proportion of parents engaging in their own interests, voluntary work, visiting relatives and friends, or studying. Kindergarten and playcentre parents were more likely to use the time for house- and farm-work compared with those attending private preschools, childcare, or Family Day Care. Playgroups and playcentres stand out for having parents attend the early childhood service at the same time as their child—95 percent of the playgroup parents and 68 percent of the playcentre parents. The figures for other groups are very low by comparison. It would seem from these figures on parental use of time released by early childhood education services that kindergartens and playcentres are meeting a range of different parental needs, and possibly a greater range than childcare, private preschools, and Family Day Care.

Staff-parent Communication

Podmore and Craig's (1991) interviews of the parents of infants and toddlers at a range of childcare centres suggest the need for more staff-parent communication about ECS programmes. Observations also revealed that the amount of communication between staff and parents at arrival and departure times varied from centre to centre.

Most parents felt they had received enough details about their child from staff at both the first ECS (85 percent) and current ECS (79 percent).[16] In general, parents felt that there had been enough opportunities to talk with the staff at the first and current ECS—88 percent (first) and 87 percent (current). Full-time paid workers felt this less than others (71 percent current). However, nearly 1 in

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[16] Some parents found our questions about staff-parent relationships at the first ECS difficult to answer, where the first ECS had no formal "staff" *per se*. For example, 42 children attended a playgroup as their first ECS. These playgroups were typically run by the mothers themselves, often on a very informal basis. Although the children had access to equipment and activities, and opportunities for socialisation with other children, there were no staff for parents to communicate with, as the groups were self-sufficient. This group of parents has been omitted from the analysis, where questions about staff-parent communication were considered by the parents not to be applicable.

5 families would have liked more details about their child's ECS experience from staff at the current centre.

The most frequently mentioned method of communication at both first and current ECSs was the "short conversation", accounting for 92 percent and 86 percent of answers respectively. Just over one quarter of parents mentioned that information about the current ECS was shared through written entries in a notebook, or some other structured means. This category was mentioned slightly less often when describing communication with the first ECS. Playcentres, private preschools, Family Day Care, and childcare were the ECSs most likely to communicate with parents via notebook entries or to provide other structured means of sharing information between home and ECS.

Newsletters and noticeboards were remembered most by parents whose children went to childcare centres and private preschools. Other means of communication used by staff at both first and current centres (although much less frequently) included telephone calls, visits to the home, and regular interviews with ECS staff.

Telephone calls were more likely to be used by Family Day Care staff than by staff at other ECSs. Home visits were very rarely used to communicate with parents, probably due to the time involved, although 1 Family Day Care family, 2 kindergarten families, and 3 playcentre families reported having had home visits. Fourteen families reported that staff had talked with them only if their child was having problems; these families had children attending playcentres, A'oga Amata, kindergartens, and private preschools. It was only at some childcare centres and private preschools that parents reported that they had to make an appointment to discuss their child with the staff, and that (formal) interviews with the staff took place (with the exception of 1 kindergarten parent who also reported having had a formal interview).

Twenty-one parents reported only limited or no contact with the staff at their child's ECS. No one ECS type was prominent in this set.

We asked parents whether they usually approached the staff, or whether the staff approached them. The pattern was similar at both first and current centres. In many cases, staff and parents approached each other equally often (59 percent first, 52 percent current). However, there were also groups of parents who reported that they usually approached staff (23 percent first, 22 percent current), and parents who reported that staff usually approached them (17 percent first, 20 percent current).

There was a noticeable overrepresentation of parents working full time and those who felt they had not been given enough details about their child's ECS experience among parents who approached ECS staff. Parents with Bursary/HSC were overrepresented among those who felt they had not received enough details about their child's ECS experience.

Joint Staff-parent Work on Children's Problems

Just over half the main caregiving parents had sorted out a problem regarding their child together with the staff at the current ECS. A slightly lower number (41 percent) had worked through a problem at their child's first ECS. Of those who answered that they had solved a problem with the staff, 45 percent (first) and 56 percent (current) of parents described a "social-emotional" problem, for example, difficulty separating from parents, or fighting with other children. A range of other problems were also mentioned, including those related to health, self-care, sleeping, cognition and language, and difficulties with other children's behaviour (e.g., being bullied). At the first ECS, problems relating to health, self-care, and sleeping were mentioned by 44 percent of parents, compared with 18 percent at the current centre. At the current centre, parents were more likely to have worked on problems related to cognition and language, or with other children's behaviour (both mentioned by 16 percent of parents), whereas at the first centre these were mentioned very rarely. These results suggest, not unexpectedly, that the nature of children's problems change as they grow older.

Parents of boys were more likely to describe a cognitive language problem solved jointly with ECS staff: 13 percent, compared with 3 percent for girls. Maori and Pacific Island parents were marginally less likely than Pakeha/European to sort out a child's problems together with ECS staff.

Staff-Parent Relationship—the Staff Perspective

In the APCC interview, ECS staff were asked how they would describe their relationship with the child's parents, using a 5-point scale which ranged from "very difficult" to "very good/excellent". Eighty-seven percent of the ECS staff believed that the relationship could be described as either good, very good, or excellent. Many staff spontaneously offered additional comments about the relationship, as the following remarks show:

> [She's] very supportive of the kindergarten, she can be rung any time as a parent-helper.

> I found her very easy going. We weren't very close, as I hadn't known her before, but she was always very friendly—seemed a capable sort of person.

Some staff members took this opportunity to comment on particular problems that had arisen, such as the following:

> There has been some friction between the head teacher and the parents regarding [the child] being collected very late.

> Occasionally there are niggly sorts of worries that I know that [the parents] don't see as a problem. They are very lenient on [the child] and sometimes don't seem to understand when her behaviour is inappropriate.

Fifty-eight percent of the voluntary comments of ECS staff described staff relationships with parents as open or confiding, and 20 percent referred to the parents being supportive of the ECS.

Because we had specifically asked about the relationship with the child's parents, 60 staff mentioned that they had never or rarely met the child's father. Nine staff commented that while the relationship with one parent was good, it was not so good with the other. Others added after rating the relationship that they had not seen the parent(s) very often, or saw them only briefly.

How Staff Relationships with Parents Affected What the Child Had Gained from the ECS

Most staff commented positively when asked how their relationship with the child's parents had affected what the child had got out of attending the ECS. The following comments are typical:

> I can speak to her mother openly about any problems or queries.

> It certainly makes it easier to understand [the child], we know about family happenings and what's affecting the child's day to day life.

> It's definitely helpful. [The mother] parent helps often, chats at the end of the session.

Of the wide range of answers to this question, the greatest cluster (30 percent) related to the positive effect of the parent-staff relationship on the child's independence, attitude to the ECS, or ability to attend. Effects included being able to deal positively and consistently with problems experienced by the child, the staff member feeling supported or involved, and staff ability to provide reassurance or support for parents (around 20 percent each).

Around half the staff who described their relationship with the child's parents as good or very good/excellent commented on the positive effect of this relationship on such aspects as the child's independence, attitude to ECS, and ability to attend. Only 18 percent of staff who described the relationship as between very difficult and satisfactory made similar comments. Only 4 percent of this latter group of staff mentioned that they felt supported by parents, compared with 20 percent of staff who had experienced a good relationship, and 35 percent who felt the relationship was very good or excellent. A noticeably larger percentage of staff (29 percent) with very difficult to satisfactory relationships commented that they found it hard to see that their relationships with parents had any effect, compared with staff with good (13 percent) and very good/excellent relationships (5 percent).

Not unexpectedly, staff who enjoyed a very good or excellent relationship with parents did not perceive any negative effects from the child's attendance at the ECS compared with 3 percent of those with a good relationship with parents and 11 percent of those with very difficult to satisfactory relationships.

Summary

Although some ECS experience of at least 2 to 3 years is near universal, there is no standard ECS experience. Patterns of attendance vary considerably. The main reasons indicated by these data are parental employment, ECS cost, and availability of an ECS perceived to meet children's needs and fit in with parents' other family responsibilities and personal needs. Perhaps parental needs come more to the fore in choice of ECS because, unlike school, it is not compulsory. Perhaps if parents of school-aged children were asked what they did with the time their child was at school, we would see a similar role emerging as we saw here for ECS of providing support for parents as well as children.

Different ECS types seem to offer different kinds of support for parents, including the prospect of parental involvement. There is an irony in that the ECSs which have less parental involvement and opportunity for contact with other parents, and for enhancing the understanding of one's own child and child development, are the ones which at the time of the study could be used by parents eligible for the childcare subsidy, sole parents prominent amongst them.

Kindergartens and playcentres were the ECSs which had the most even use across different social groups—with the rather glaring exception of sole parents. These were the cheapest ECSs for parents to access.

The high incidence of packaging and the difficulties experienced by 20 percent of the sample in finding satisfactory ECSs at some stage in their child's first 5 years raises some questions about the availability of ECS—as much a shortage of places for children in an ECS parents considered to be of the quality their child needed, as availability for longer hours or "flexibility".

Satisfaction with ECSs as gauged from parents' perceptions of lasting effects and concurrent aspects of provision, and their report of their contact with ECS staff and information from ECS staff on their child's ECS experience, was generally high.

CHAPTER 7

THE ECS: RESOURCES, STAFF DEVELOPMENT, PLANNING, ASSESSMENT, AND BEHAVIOUR RULES

This chapter sets out the main characteristics of the ECSs participating in our study, their planning of children's learning, their assessment of their programmes, their behaviour rules for children, and the qualifications and staff development of their teachers and caregivers.

Administration

Twenty-nine of the ECSs were administered by parent co-operatives—all the playcentres, 8 of the 20 childcare centres (in this chapter this includes private preschools), and 1 A'oga Amata. Kindergarten associations were responsible for all of the kindergartens. Five of the childcare centres and 1 A'oga Amata were administered privately. Five of the childcare centres were run by schools or institutions, and 2 by Barnardo's. The Family Day Care schemes in our study were all run by Barnardo's.

Charters

All the playcentres, kindergartens, and A'oga Amata were chartered, and 85 percent of the childcare centres. The rest of the childcare centres were licensed. The Family Day Care schemes were all approved under the Ministry of Education code of practice.

Charters were originally intended to provide both goals for each ECS, and a stimulus to discuss the performance of the ECS. Half the playcentre "staff" discussed their charter and their performance in relation to it, at least monthly with parents, as did a fifth of the kindergartens, and 5 percent of the childcare centres. Meetings on the charter with parents were held once a term in the A'oga Amata.

Staff discussions on the charter followed much the same pattern for kindergartens, childcare centres, and A'oga Amata. Thirty percent of the kindergartens held staff discussions on the charter at least every month, and 20 percent of the childcare centres. Two A'oga Amata had monthly discussions on the charter, and another every 6 months. As with schools (Wylie, 1994), it seems that the charter provides background rather than being a "live" guide to ECS planning and programme evaluation.

Parent Help

Seventy-four percent of the study kindergartens had 1 or 2 parent helpers on a typical day. Five percent had 3. Eleven percent typically had none. In contrast, 68 percent of the childcare centres had no volunteers or parent helpers typically present each day. Eleven percent had 1, and 21 percent 2 parent helpers or volunteers. One A'oga Amata had 3 parent helpers each day, another 2, and 1 none.

Playcentre is the parent-help or volunteer ECS *par excellence*. Our question here was slightly different: how many people were rostered to help at the playcentre over the last month? The range was from 12 to 106, with an average of 53.

Staff Gender and Ethnicity

Almost all the 416 ECS staff in our study were women. Seven men were in playcentres, and 2 in childcare. The ECS staff were predominantly Pakeha/European. The A'oga Amata staff were all Samoan, as were 6 percent of the childcare staff. Three percent of the childcare and playcentre staff were Maori, and 3 percent of the childcare and 2 percent of the kindergarten staff were Asian. Ethnicity was self-described.

Staff Status

Kindergartens were the service most likely to have full-time staff members with 95 percent. Fifty-six percent of childcare teachers were full time, 41 percent of our Family Day Care caregivers, and 14 percent of the A'oga Amata staff members. Playcentre staff were invariably part time.

The next table provides information on qualifications and experience of staff working in ECSs. The following table displays ECS characteristics supplied by the supervisor or another ECS staff member at each of the ECSs in the study. It confirms the picture gained from the study children's parents that different ECS types are catering for a different range of families. The information in the 2 tables also shows some of the differences in provision which mark differences in ECS type in New Zealand.

Some of these characteristics are used in our subsequent analysis of ECS quality, and the associations between ECS quality and children's competencies, since they have been reported in the overseas research literature and by Smith (1995) in New Zealand as having associations with the outcomes of ECS attendance for children. These are: staff stability, ECS staff early childhood educational (ECE) training, highest staff salary, and the socioeconomic profile of the children served by the ECS. Roll stability has also been used for the analysis.

Table 39

ECS Staff Education and Years of ECS Work

ECS staff characteristic	Childcare/ private preschool (N = 97) %	Kindergarten (N = 56) %	Playcentre (N = 219) %	Family Day Care (N = 22) %	A'oga Amata (N = 22) %
QUALIFICATIONS					
Highest School Qualification					
Bursary/HSC	15	7	24	15	–
UE	31	61	48	27	–
SC	26	23	14	32	14
None	17	7	8	27	77
Post-school Qualifications (selected)					
Degree	10	13	24	9	0
Teacher's certificate	33	86	6	0	0
Trade/other certificates	3	0	16	9	32
None	11	0	25	55	0
Early ChildhoodEducation Qualification					
ECE diploma	35	98	2	–	9
Certificate equivalent	12	–	16	–	86
Some ECE training	33	–	63	95	5
No ECE training	14	–	18	5	–
Current Professional Development					
Upgrading ECE qualifications	56	55	69	9	32
Interested in further training	74	75	54	41	77
ECS EXPERIENCE					
Years of experience (range)	0.5–26	1–23	0.5–13	1–15	1–9
Average years of experience	5	11	4	5	4

The indicators of "good quality" identified overseas are not all highly correlated in New Zealand provision. In contrast to the United States research, the ECS type with the highest level of ECE training—kindergartens—also has a higher turnover of children and staff, and higher roll numbers and group size. Playcentre children might stay in one centre, but they also come into contact with many more ECS staff. This could indicate that in New Zealand ECSs an element of good quality provision, such as staff training, may be balanced out by poorer provision in another area, such as staff:children ratio and group size, rather than having elements of good quality all augmenting each other in the same direction.

Table 40

Study ECS—Characteristics

	Childcare/ private preschool (N = 97) %	Kindergarten (N = 56) %	Playcentre (N = 219) %	Family Day Care (N = 22) %	A'oga Amata (N = 22) %
CHILDREN					
Roll size (range)	29–96	35–91	17–161	n/a	23–44
Average	52	89	56	1–4	32
Roll capacity full	30%	68%	65%	n/a	100%
Typical length of child's stay					
In ECS (months)	12–42	6–36	24–60	10–55	30–48
Average (months)	26	18	30	23.8	42
Roll stability					
Very stable	55%	26%	20%	25%	67%
High turnover	0%	26%	0%	8%	0%
Socioeconomic profile of children served by ECS					
Wide range	25%	26%	35%	33%	67%
Mainly middle class	50%	16%	50%	0%	0%
Low-middle income	0%	42%	15%	17%	0%
Low income	25%	11%	0%	50%	33%
Ethnicity of children served by ECS					
Mainly Pakeha/European	75%	58%	75%	58%	0%
Mainly Pacific Island	0%	0%	0%	0%	67%
Mixed	25%	42%	25%	33%	33%
STAFF					
No. of part-time staff	0–8	0–4	12–106	9–24	3–11
Average	2	0	53	17	6
No. of full-time staff	0–9	1–3	0	0–31	0–2
Average	2.5	3	0	16	1
Staff stability over last year					
No change	30%	42%	14%	33%	67%
Less than ⅓ turnover	65%	42%	75%	58%	33%
More than ⅓ turnover	5%	16%	5%	8%	0%
Highest staff salary range	$10.45–20	$13.46–16.58	$6.27–13.33	$3–12	$10–15
Average	$16.08	$15.17	$8 [N = 8/20]	$6	$11–70

Staff Development

All ECSs bar one had offered staff opportunities for personal and/or professional development during the preceding year. There was a noticeable diversity of training providers. Most frequently mentioned were colleges of education (e.g., for ASTU courses), the Early Childhood Development Unit, the

Special Education Service, and playcentres.[17] Other providers included the Red Cross (for First Aid and CPR classes), polytechnics and universities (for staff enrolled for degrees and diplomas), Barnardo's workshops, New Zealand Childcare Association, CECUA (now NZEI Te Riu Roa), local free kindergarten associations and senior teachers, reading advisers, and the Hillary Commission.

Courses included "one off" classes, as well as those that met over a period of time and were contributing towards a formal qualification. Qualifications being completed included a Higher Teaching Diploma, a Diploma in Fitness and Nutrition, a Diploma of Early Childhood Teaching, and a Playcentre Supervisor's Certificate. Staff meetings, attendance at hui, and national conferences also provided opportunities for development.

A small number of staff were undertaking correspondence courses, such as those offered by Massey University and the London Montessori Centre; and another small group were undertaking field-based or centre-based training.

Playcentre expected all parents to undertake training.

One Family Day Care co-ordinator explained that Barnado's co-ordinators encourage all potential caregivers to come for training before signing on. They find that often people will "sort themselves out" after training, and generally recognise whether or not they are suitable.

Many different topics were covered during training, indicating the wide range of knowledge and skills which are now expected of ECS staff.

The most frequently mentioned courses related to health and safety issues (particularly First Aid), music and movement, creativity, human relations, Maori language and culture, and curriculum development. Some centres commented that staff had attended workshops or in-service courses, without identifying the topics covered.

Range of Courses Undertaken by Staff During the Preceding 12 Months (in descending order according to the number of mentions, beginning with the most frequently mentioned)

Health and safety: For example, First Aid, occupational health and safety regulations, safety surfaces for the outdoors, children's health issues, traffic safety, homeopathy, glue ear, AIDS/HIV awareness.
Creativity: For example, art, drama, finger-painting, Brain Gym, using natural materials, extending children's thinking.
Music, movement, and dance; physical education: For example, guitar lessons, singing, dancing, music therapy.
Maori language and culture: Including Te Reo courses, protocol awareness, cultural safety, local Maori history.
Human relations: For example, interpersonal dynamics, conflict resolution, effective communication.
Curriculum development: Including workshops on *Te Whāriki*.
Sexual abuse; child abuse: Including the development of centre policies.
Programme planning and evaluation
Special education: For example, early intervention strategies, sign language, including individual differences, gifted children.

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[17] Staff from other services (e.g., childcare centres) also reported that they had attended playcentre courses.

Child development and child management: For example, behaviour management, liberated parent-liberated child course.
Beginning mathematics, pre-reading skills, science
Parent-teacher relationships: For example, working with parents, staff-committee team-building, running parent workshops.
Speech and language development
Treaty of Waitangi and bicultural issues
Equity issues: For example, gender equity.
Play awareness; practical play
Rules and regulations; record keeping
Appraisal and assessment
Developing policies and codes of ethics
Other courses (mentioned by only 1 or 2 centres): Computer skills, puppetry, fun with fabrics, flax, orienteering, self-defence, making play equipment, supervision and management, domestic violence and the results for children, preparing for disaster, accountancy, Samoan and Japanese language courses, induction for beginning teachers, IRD Family Support, caregiver orientation, preparation of Individual Development Plans (IDPs—usually for special needs children), and sex education for children.

At some centres staff who have attended a course come back and share what they have learnt with their colleagues.

The duration and depth of coverage of courses varied considerably. For example, one centre reported that staff had attended a 50-hour language and culture module, whereas a Te Reo course at another centre involved just one afternoon.

Over all, 62 percent of staff were interested in doing more early childhood training. Just over half the playcentre staff, and around three-quarters of the kindergarten, A'oga Amata, and childcare staff wanted more training. Family Day Care staff were less interested, perhaps because of difficulty attending classes due to their caregiving responsibilities—staff at other ECSs were more likely to have access to release time while undertaking training.

Barriers to Development

Cost, time, and course availability emerged as barriers to ECS staff development. For example, staff at one kindergarten were having a break from papers, citing cost ($225 per paper, paid for by the staff themselves), associated travel expenses, and a lack of incentive (" . . . there is talk that we will all be put on one pay scale even if we have higher qualifications, and where is the incentive to train then?"). Staff at this kindergarten had been to many ECDU courses, but now needed Kindergarten Association permission. The Association was apparently not encouraging staff to attend courses, because of the cost of paying relievers.

It can be difficult for Family Day Care caregivers to attend courses during the day, due to their caregiving responsibilities. They are able to use Barnardo's playgroups to leave children for essential needs, such as visits to doctors, but not for any extended time. Co-ordinators are wary about overloading caregivers by expecting them to attend night courses in addition to the work they do during the day. One co-ordinator reported that they publish a bimonthly newsletter which contains child development information for caregivers and parents. This usually includes a statement from the charter, information on *Te Whāriki*, and practical details such as recipes for dough and paint, and ideas for activities.

One centre reported that staff had enrolled for special education and gifted children courses which had been cancelled.

Parent/caregiver Development

Playcentres reported a heavy emphasis on ongoing parent development and training, described as essential for a successful playcentre. Each parent was encouraged to undertake study to a minimum of the parent helper's certificate, which was described as giving a good basis and initiation to playcentre philosophy. Parents were encouraged to undergo further training if they were interested and available. Typically, workshops on a range of topics were available through—and funded by—the local playcentre association, in addition to in-house sessions run by individual playcentres.

Parent education offered by kindergartens included a shared luncheon to discuss one kindergarten's sexual abuse policy, luncheons to get parents of different cultures together, a talk about starting school given by a new entrant teacher, educational videos followed by discussions, and courses on First Aid, assertive discipline, communicating with children, traffic safety, diet effects on children's behaviour, positive parenting, stages of play, and pre-writing skills. Several kindergartens also maintained noticeboards with information about such things as courses, health issues, parent groups, and minutes of meetings, and some provided parent libraries. Consultations with parents and caregivers about *Te Whāriki*, and particular kindergarten philosophies and goals were also mentioned.

Courses run by childcare centres included sexual abuse, discipline, evenings for parents whose children were new to the centre (covering the centre philosophy, how it runs, the degree of parent commitment expected and so on), educational videos (for example, choosing a good programme for an early childhood service), and talks focusing on particular areas of learning, such as early mathematics.

One Family Day Care co-ordinator reported that they invited parents (and caregivers) to take courses which may help them to qualify for jobs in the future, such as those covering mathematics and language skills. Some Family Day Care programmes send out newsletters to parents to keep them informed (as previously described). None of the A'oga Amata specifically mentioned parent development courses, although at these centres parents were encouraged to stay for a cup of tea and a chat, and to help out.

The ECS did not comment on how well attended their parent and caregiver courses were, with the exception of one centre reporting that there had been a poor response from parents to an evening workshop on "keeping children safe".

Planning of Children's Learning

In this section, we present staff accounts of how they planned children's learning, as given in their written responses to our profile questions. Descriptions varied in their specificity and scope.

Most early childhood centres had both short- and long-term plans. Plans typically drew from many different sources—including observation of children to decide on topics of interest, discussions with parents, and suggestions from staff—and were discussed at staff meetings before being implemented.

Kindergartens

Plans described by kindergarten staff drew from the sources identified above, as well as being influenced by the (draft) curriculum guidelines, *Te Whāriki*. During planning sessions, staff considered

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whether their previous goals had been achieved, and outlined objectives and strategies, assigning staff members to particular activities. Most kindergartens developed individual profiles (sometimes referred to as Individual Development Plans, or IDPs), as well as planning small- and large-group activities. However, some developed individual plans only for children who needed extra help. Parent education programmes were also discussed at some kindergartens.

Plans were often displayed for parents, with some kindergartens encouraging parents to comment on them. Some kindergartens displayed only group-level plans (covering broad goals and objectives), sharing individual plans privately with parents. Others reported that they displayed both individual and group plans.

Short-term planning meetings typically occurred on a regular basis, usually every 2 weeks. Programme plans were often reviewed at week's end. Evaluation was seen as an important part of the process. For example, staff at one kindergarten regularly went through the self-reflective questions set out with *Te Whāriki* aims to identify any gaps in their programme and develop further objectives.

Long-term plans for the term and the year took into account factors such as the evaluation of the previous term, team philosophies, and charter objectives. Some staff first set goals for the year or the term, and then broke them down into weekly or fortnightly plans.

Playcentres

Planning meetings were held regularly at most playcentres in the study. Team meetings were typically held once or twice a term and provided opportunities to plan and discuss sessions, activities, themes, trips, training needs, fire drills, visitors, and so on, and to make any necessary changes based on reviews of previous sessions. Plans for children's learning considered their overall physical, intellectual, emotional, social, and language development, as well as any particular needs of individual children. The 16 areas of play in the playcentre philosophy were used as a basis for planning, and children's own ideas were often incorporated. Plans were considered flexible. The over-riding aim was to provide a range of developmentally appropriate activities at each session, with play being child-initiated. At one playcentre, the sessions for 4-year-olds included extra activities such as clay that were difficult to have available when younger children were present.

Planning meetings provided a link between different teams, who would usually try to co-ordinate their planning so that topics for each week were complementary and provided continuity. Notice-boards were used to communicate which activities had been planned and which had taken place. Parental input into programme planning was encouraged. For example, some playcentres encouraged all parents to attend the regular planning meetings.

Session meetings were often held briefly before and after each session. During these meetings, the team might sit down with a diary and evaluate what had happened at the session, and then make plans for the following week's sessions.

Childcare

Planning varied from centre to centre, but typically was done as a team effort at regular staff meetings. Plans often evolved from observation of children to determine their needs and interests, both at individual and group levels—" . . . the needs of the children are paramount in planning". Sometimes activities were planned around events such as festivals or celebrations. At some private preschools, teachers developed plans in consultation with primary school teachers of new entrant classes, taking into account themes that the larger school was covering. Plans were displayed at some centres.

The Montessori schools followed the Montessori system when planning, considering its 4 main areas: mathematics, language, practical life, and sensorial. Standard Montessori equipment was used, along with a range of other activities.

Private preschool staff were more likely than staff at other ECSs to talk about specific subject areas, such as English, mathematics, and social studies. One private preschool teacher explained how they followed a regular routine each day: "Reading and associated activities take place in the mornings before playtime, and maths and PE come after morning tea." At another private preschool, reading was linked to homework. One childcare centre had structured learning and teacher-directed activities, which took place during group-times occurring from 10 a.m. to 11 a.m. daily.

Some childcare centres regularly developed IDPs, and some had adopted a primary caregiver system. For example, at one centre, each teacher was required to carry out an observation of an individual child. This was analysed by the staff member in non-contact time, brought to the staff meeting for recording and discussion, and an individual plan developed. Evaluation was carried out 4 weeks after the plan was written up. At another centre, the primary caregiver planned an individual programme for each child with the director. This programme was shared with all staff at staff meetings, and recorded in the child's folder. At several centres, broad-based goals for each child were incorporated into the programme; one of these centres required the parent's permission to do so.

Some staff meetings were held at night. One person explained that the Education Review Office (ERO) had asked them to formalise their planning, but it was hard to find time to sit together as a staff to plan, particularly when some staff were part time and children also attended at different times.

A'oga Amata

Each of the 3 A'oga Amata in the study had a slightly different approach to planning children's learning. One had adopted a thematic approach around developmental activities, children's talks, games, stories, and so on. At another, staff used staff meetings for planning. During these meetings, staff talked about any problems with the children, and then developed a programme for children's learning. At the third A'oga Amata, supervisors met to discuss activities for the children once every 3 months.

Family Day Care

The 10-week training course for caregivers provided an introduction to planning children's learning. Planning was expected to follow the guidelines in the Record of Care and Education, although some caregivers chose to use a notebook in diary form instead. Parents' involvement in the planning and follow-up process was encouraged. Co-ordinators visited caregivers, helped with planning and developing programmes, and offered suggestions on handling problems.

Caregivers were encouraged to draw on their own skills and experience to plan a wide range of activities, although the co-ordinators perceived that some caregivers were much better at planning than others. Some were reported to "live as they live", rather than following set plans, which was not necessarily seen as a disadvantage by co-ordinators who pointed out that many activities which occur around the home are educational and are used instinctively by caregivers to help children learn. Some caregivers were described as being very organised, but not always good at keeping written records of their planning.

Assessment and Recording of Children's Learning

Most centres used a combination of observations and written records, although the frequency of recording and the amount of detail recorded varied considerably. Particularly at childcare centres and kindergartens, it was common practice for staff to be assigned a particular group of children to follow, with these staff being responsible for monitoring the progress of individual children within their group.

Kindergartens

Many kindergartens maintained individual profiles for each child. Staff typically wrote notes about their observations of individual children, including their motor skills, interaction with other children, independence, writing, cutting skills, and so on. Observations were often supplemented by anecdotal records, running records, photographs of children's activities, looking at children's workbooks, and informal discussions with other staff. Some kindergartens also used check lists and IDPs. One kindergarten paid particular attention to children with language or hearing problems. Observation sheets and check lists completed by some kindergartens were shared with parents and given to the parents when the children left kindergarten; one kindergarten passed the check list to the school, with parental permission. Results from observations and other record-keeping procedures assisted with planning. For example, if a need was identified, activities focusing on this area could be incorporated into the programme.

Te Whāriki had influenced the way some kindergartens kept their records, for example by helping staff to develop curriculum outcomes.

Weekly staff meetings also provided opportunities for staff to evaluate the programme, and discuss any problems; notes were also compared informally. Work pressures and lack of time prevented some staff from keeping more detailed records. One teacher commented that if the information gathered was complex, then there was no time to evaluate it; another noted more discussion than recording occurred, also due to lack of time.

Three kindergartens sent staff to visit children's homes as part of the assessment process; one had staff make notes during the home visit before the child actually started kindergarten. Although most kindergartens appeared to carry out observations at various times throughout the period that the child attended kindergarten, some specified particular times for more in-depth observations, such as when the child shifted to morning kindergarten, or in the final month before the child was due to start school.

Playcentres

Playcentre personnel typically assessed and recorded learning through a combination of observations, session evaluations, fortnightly supervisors' meetings, and verbal feedback from other parents, which often occurred during informal discussions. Parental input was encouraged, and the playcentre training programmes familiarised parents with observation skills. Many people mentioned that they would only discuss a particular child in any detail during a meeting if the child's parent was present. Some playcentres kept notes in diary format—such as a Continuity Diary—to keep notes about friendships, activities offered, accomplishments of particular children, and so on.

Several playcentres said that it was against playcentre policy to keep written evaluations of children, and therefore they did not do so,[18] even though in one case ERO had specifically recommended them. Some playcentres used session diaries to record only *positive* comments about children. One playcentre reported that any negative observations had to be brought to the team co-ordinator, who would talk with the parent(s). Together, they would then decide whether the matter could be dealt with at that level or needed to be discussed at a meeting. At another playcentre, parents believed that written records of children's learning could be limiting, by focusing on what a child can *not* do, instead of what he or she *can* do; however, the minutes were taken at supervisors' meetings where each child was evaluated. Staff at one playcentre did not keep records, because they believed that learning opportunities would happen if provided. At some centres, observations would be done if individual parents specifically requested them, or if a child showed signs of delayed development. Concerns could also be passed on to parents if necessary, without formal recording of children's learning.

Some centres did keep written records for each child, which supervisors and parents could add to. One playcentre was trialling keeping a brief note on what each child did during the session. Some centres kept notes only about positive things that had happened during sessions. A new assessment system had been initiated at another playcentre, allowing each parent the option of evaluating their own child using materials provided by the playcentre. All written material was to become the property of the family and not the playcentre.

Several centres had daily session evaluations, which were used to note what had happened and to assist with planning for the following sessions. A sample evaluation form showed space for listing the duty team, the type of activities provided and comments about the activities, the type of food provided, the weather conditions, and the tone of the session. There were also spaces for adding general comments, and notes about specific children. Session evaluations sometimes included brief notes about each child. At one playcentre, they reported that the session diaries provided good feedback for the parents who were less involved.

Childcare

Staff at childcare centres relied on a combination of observations, anecdotal records, and frequent discussions with colleagues. A small number of centres used check lists and developmental charts for assessment; one centre had discontinued using check lists because they believed them to be destructive. Some kept worksheets, art, etc., completed by each child. Recording was often done in the form of notebooks or record cards. Several centres produced written reports for parents several times a year; some held parent conferences. In children's folders were kept plans, observations (e.g., whether the child recognised colours, how they used scissors, socialisation skills), examples of work, and notes on events in the child's life.

One centre tried to keep a daily record of what activities each child had been involved in, and whether the child had been directed to the activities or chose them alone; these notes were collated at the end of the week and put into the child's file. Some centres developed IDPs.

Discussions among staff helped with planning for the following week's programme. Staff at one centre described their record-keeping as "very thorough", adding that it helped them highlight children's strengths and weaknesses.

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[18] Unless, for example, a child was enrolled in a Special Education Service programme that required records to be kept.

The regularity of recording varied. For example, one centre recorded children's learning daily, weekly, and monthly in their individual profiles. Another allowed 1½ hours per week for staff to complete records from which children's learning and progress was assessed. Some centres updated records regularly, ranging from once a month to twice a year; others did so when time allowed.

At some preschools, children were grouped by age and/or ability for group work. For example, at one preschool, children were divided into reading groups dependent on their progress, and activities were planned for each group. Some childcare centres assessed children when they reached a particular age or stage, such as starting preschool and then again before moving up to the main school, at ages 4 years and 2 months and at 4 years and 10 months, or just before starting school. At other centres, the assessment and recording of learning apparently followed the same pattern regardless of the child's age, and it did not seem to matter whether the child was in a mixed-age group or in a group with his or her peers.

A'oga Amata

Two of the 3 A'oga Amata kept written records for the children, based on observations of the children. One of these centres supplemented their reports with observations from the child's parent(s), and also kept a centre diary with general information on the programme and about each day's events. At the third centre, they made observations of children's experiences and had verbal reports, but kept no written records.

Family Day Care

Record of Care and Education sheets were supposed to be completed by caregivers on a regular basis, ideally once a week. These included comments about the child's activities, experiences, routines, health, development, and achievement, with space for additional comments from the parent, who must read and sign the record to confirm that it had been seen, and a plan of activities to be encouraged for the child. Some caregivers also kept diaries, which could be supplemented by artwork. At one scheme, co-ordinators assessed children during their monthly visits, rather than expecting caregivers to assess children's learning. However, these caregivers were also encouraged to do a 20-minute observation of their children once a month, to be discussed with co-ordinators.

One co-ordinator found it hard to insist that caregivers completed the Record of Care and Education, believing that children's happiness, which was most important, was difficult to judge by the quality of (the caregiver's) written work. Another commented that there had been increasing pressure from the Ministry of Education to make caregivers more accountable for children's education.

Input from co-ordinators was important—they offered suggestions to caregivers during their regular visits and sometimes over the phone if immediate advice was needed. Co-ordinators' visits usually occurred fortnightly, but were often more frequent when a child was just beginning to attend a Family Day Care home.

Links Between Planning, Assessment, and Recording

Providing the link between planning, assessment, and recording was easier for some ECSs than others. Playcentres, for example, typically answered this question by referring to the regular meetings which were held to evaluate and plan, as well as the continual informal discussions about the programme which occurred among parents. Kindergarten staff also referred to their regular meetings and discussions which contributed to this linkage; one teacher observed that having the time and a small, constant staff made this easier. Although some childcare and private preschool staff had no difficulty making the links between planning, assessment, and recording, others found it hard. Some were working towards developing a more formal process; some were seeking help from the Early Childhood Development Unit and the Education Review Office. One staff member believed that all early childhood centres could probably do with more help in making these links. Another commented: "We sweat and struggle with this!" One centre simply did not answer the question. Family Day Care caregivers were encouraged to use the Record of Care and Education forms to think about how the links could be made, under guidance from the co-ordinators.

Some staff referred to answers given in previous questions when describing how they linked planning, assessment, and recording.

Kindergartens

Linking planning, assessment, and recording was a cyclical process at most kindergartens—observations and assessments occurred, plans based on these were developed, implemented, and evaluated, and then new plans were produced. Discussions occurred frequently as part of the cycle, and were both formal (during regular staff meetings) and informal (brief chats over lunch or during setting-up time). Evaluations were often written down, for example, in staff meeting books or on separate objective sheets. If observations indicated that some children were having difficulty with a particular skill, then the upcoming programme could offer activities to give them more opportunities to develop this skill.

Objectives could be group based, or targeted to individual children. At one kindergarten, staff spent an allocated amount of time with children needing help with particular areas. If appropriate, parents would also be offered suggestions to reinforce what was being done at the kindergarten. Individual needs were linked to learning objectives, so that progress could be recorded.

Several kindergartens used *Te Whāriki* as their co-ordinating linkage.

Playcentres

Links between planning, assessment, and recording were done on both a formal and informal basis in most playcentres. Teams often met weekly to evaluate and plan for sessions, and to share any concerns. Monthly reviews with other teams also took place to ensure consistency. Supervisors' and co-ordinators' meetings occurred regularly. Because of the parent co-operative aspect of playcentre, close interaction between children and adults occurred in and out of sessions, and adults got to know children's needs and abilities very well. One playcentre commented that this ongoing communication was the fundamental ingredient which kept planning relevant and assessment accurate, and backed up the recording that was done.

Much of the linkage was done verbally, rather than being written down, although records were also kept. If session records (often in diary format) were kept, they were typically open to all parents. These records provided a foundation for further plans. Noticeboards and newsletters also provided information.

Observations done by parents for training purposes were considered confidential and were not formally linked back to the programme.

Childcare

Planning, assessment, and recording were typically an ongoing process in childcare centres. Planning was often based on children's needs, following observation of individual children or the group as a whole. Discussion (about goals, strategies, and objectives) at regular staff meetings was considered valuable, and was supplemented by informal talks among staff. Several centres commented that the linking process was greatly helped by staff being skilled communicators and working well as a team.

One preschool planned around themes, such as colours, and then "tested" the children to see if further reinforcement was needed. Children at another centre were given homework to reinforce learning in particular areas. At yet another centre, a daily record was kept of stories read, dough colour, and puzzles and books available and so on, so that variety could be ensured.

Parental input was encouraged at some centres to help with programme planning. At a centre where parent-teacher conferences were held, these were seen as an opportunity to look in depth at each child's progress.

A'oga Amata

Observation and verbal reporting, staff meetings, and meetings with parents provided links between planning, assessment, and recording at the A'oga Amata.

Family Day Care

The Record of Care and Education played a big part in linking planning, assessment, and recording for Family Day Care staff. The records were discussed with co-ordinators and parents as part of the linking process. One co-ordinator was beginning to incorporate *Te Whāriki* into the cycle.

Behaviour Rules For Children

Although there were differences from centre to centre in the number and presentation of rules, most of the main behaviour rules described by staff were intended to ensure the children's physical safety and emotional security. Some centres preferred to describe rules as "limits". The most common rules were:

- Respect others, the equipment and the environment, with particular emphasis on:
  —caring, sharing, and being sensitive to the needs of others,
  —using non-violent methods to resolve conflicts,
  —not interfering with others' activities;
- No running inside;
- Quiet voices inside.

The emphasis on respecting others may explain why most children first suggested a friendly, respectful approach to another child during the social-problem-solving component of the Children's Interview and Tasks.

Playcentre rules were remarkably consistent, and were all based on 3 key guidelines (with minor variations)—no child is allowed to hurt another person, disturb another's play or work, or damage or misuse property or equipment. Different versions of these same rules had also been adopted by other centre types.

Some early childhood centres had "care and share" or "helping hands" philosophies. At many centres, children were not allowed to hit others—"hands are tools, not weapons"— and guns, war toys, violent TV-based games, and swearing were often banned. Other rules frequently mentioned related to health, for example, that children should wash their hands before eating, and after going to the toilet.

Some rules were sensitive to Maori protocol—preventing children sitting on tables, and not allowing food to be used for play. Some centres had rules for adults as well as for children, mainly related to "the 3 S's"—no swearing, smoking, or smacking.

Centre rules were in some cases influenced by the centre type. For example, one full-day childcare centre had a rule relating to sleeping; children were to sleep at sleep time, but could nominate what time this would occur. One of the A'oga Amata expected children to speak mainly in Samoan. Most Family Day Care co-ordinators spoke about rules relating to the caregivers, rather than to the children. When caregivers applied for work, the co-ordinators talked with them about discipline and related issues, and this was covered in more detail during training sessions. Caregivers were encouraged to develop realistic expectations of behaviour. Physical punishment was forbidden; positive reinforcement and distraction were recommended as alternatives. Communication between parents and caregivers was encouraged, so that the caregiver was open about the rules of her home and what she considered socially acceptable behaviour.

Rules were sometimes associated with specific playground equipment, particularly slides and sand-pits (e.g., "no jumping from the slide", "feet first down the slide", "no throwing sand"). Rules relating to trolleys were also quite common. There were also rules about areas that children were allowed access to, with some centres banning children from the office and kitchen areas. Three childcare centres and 3 kindergartens had a rule that children were not allowed to go outside without an adult. Many centres expected children to sit in a designated area (e.g., at a table) when eating. At some centres, children were encouraged to tidy up after themselves, and to leave areas ready for other children to play in.

The variation in wording of rules was interesting. Many centres clearly stated what children should *not* do (e.g., "no playing with sticks", "no going into other children's bags"). At only a few were the rules expressed affirmatively. For example, instead of saying "no running inside" (as many centres did), one kindergarten talked of "walking inside".

At another ECS, children and staff had worked together on a contract. This contract began, "So that our (ECS) can be a safe and happy place for us to work and play, we will . . . " and then went on to list the 13 items that had been agreed on, for example, " . . . care for each other", " . . . understand if someone feels angry", " . . . use tools and toys in a safe way".

We did not ask what happened if the rules were "broken", although several centres volunteered that they used time-out for unacceptable behaviour. At one centre at least one of the rules was ignored by the children—"They're not supposed to jump on the slide, but they do it anyway." One centre gathered the children together in a group to discuss inappropriate behaviour. Some centres acknowledged co-operative behaviour with encouragement and praise from the staff (" . . . we have a *catch them when they are good* approach".) Children at another centre were encouraged to learn to take responsibility for their own actions if their behaviour was unacceptable.

One centre encouraged children to role-play to learn strategies for resolving conflict. Many staff encouraged children to use language to talk about how they were feeling, to resolve disputes through communication, and to attempt to sort out problems among themselves, seeking help from an adult only if that did not work.

Visitors and Excursions

Half the kindergartens and playcentres had at least 5 visitors each month to their centre. The average for childcare centres was 4. One A'oga Amata had 1 visitor a month, another 4, and the other 40 visitors.

Most of the children in our study ECS went on regular excursions, for example, walks to the park. At 55 percent of the playcentres, 21 percent of the kindergartens, and 40 percent of the childcare centres, children went out at least once every month. Forty-two percent of the Family Day Care co-ordinators thought that the children in their schemes would go out at least once every week. In one A'oga Amata children would go out every 3 to 4 weeks.

Summary

Most of the ECSs had a systematic approach to their provision of education and care for the children they were responsible for. In many cases staff had a reasonably high level of school education, though the level of specific early childhood education training was not high over all. While continual staff development was common in the ECS, the scope and depth of the courses taken varied considerably, and few of the staff appeared to be working toward gaining an ECE diploma.

Programme activity was already being informed by the draft curriculum guidelines in a number of ECSs, particularly the more co-ordinated kindergartens and playcentres. Programme activities were also being informed by the interests and needs of the actual children attending the ECS. Evaluation of activities and children's needs were usually based on observation, with more emphasis on informal than formal means. This reflects the absence of reliable assessment methods in this age group, and the difficulty of designing something suitable, based on the curriculum.

ECS behaviour rules—or "the hidden curriculum"—for children emphasised guidelines for playing/working with the children's peers, as well as securing sufficient space for that play/work in keeping noise and indoor running to a minimum.

Differences between ECS types emerged in looking at their staff and roll characteristics. Kindergartens appear to be catering for a wider, or more diverse, range of families than other ECSs, but with staff who were more highly trained, and with longer experience of working with preschool children. Kindergartens and playcentres, the least costly options for parents, had fuller rolls than other ECSs, providing a further indication of the importance of cost for parents in their children's access to an ECS. With childcare and private preschools, these were the ECSs most likely to be providing some parental education and support through group sessions as well as informal contact with ECS staff and parental help with activities.

While interest in further ECE training is evident across all types, with the exception of Family Day Care, whose caregivers were least likely to have had ECE training, ECS staff were facing real barriers of time and cost in keeping abreast of their profession and honing their knowledge and skills.

CHAPTER 8

CHILDREN'S EXPERIENCES IN EARLY CHILDHOOD SERVICES

Observations—What They Showed

Each of the children in our study was observed 5 times on 3 occasions, in the early childhood service setting where we had located them. We undertook this observation of their play/work for several reasons. The first was to provide us with a picture of what was happening in early childhood centres for the children in our study. Our rating of the early childhood services provided us with a picture of what was available at the services: but we wondered how this would equate with the children's own individual experiences. It seemed to us especially important to have some indication of their experiences, particularly if there were children whose competencies did not seem to match with the quality of early childhood care as evaluated by our rating.

The second reason for undertaking the observation was to develop a clear picture of what actually happens in New Zealand early childhood services. This chapter gives the quantitative picture which emerged.

Our observations lasted 1 minute each. During this time the field workers took note of what the child was doing, whether the child was working alone or with others, and the quality of interaction with other children, or an adult. The observations were recorded on a single sheet, with a description of the child's main activities and any conversation recorded at the bottom of the sheet (a copy of this instrument can be found in the appendix). The material used for statistical analysis and description focuses on the level of the children's play, and the quality of their interaction with other children and with their early childhood service teachers.

There are a total of 4861 observations. Thirty percent came from kindergartens, 29 percent each from playcentres and childcare centres, 8 percent from Family Day Care homes, and 3 percent from the A'oga Amata. Eighty-two percent of the ECSs catered only for those in the 3- to 5-year bracket, with 18 percent covering the whole preschool range. Most of our observations took place in the morning (73 percent). Sixty-two percent of the observations were made while the children were playing inside.

Group Size

Only 7 percent of our observations were of children playing alone, without the company of other children or an adult. However, three-fifths of the sample children played alone, with or without an adult, in at least one of our observations.

Children were usually observed playing in groups which formed spontaneously. Many children were in groups of 2 to 5 (45 percent). Twenty-three percent of our observations were of 2 children playing together and 19 percent covered groups of 5 or more children.

Adults were with the children in 47 percent of our observations: 37 percent within 1 metre of the child we were observing, and 10 percent further away. Usually only one adult was present. More than one adult was present in 7 percent of our observations. This indicates that ECS staff are more likely to spread themselves around and work with small groups of children rather than one or two large groups.

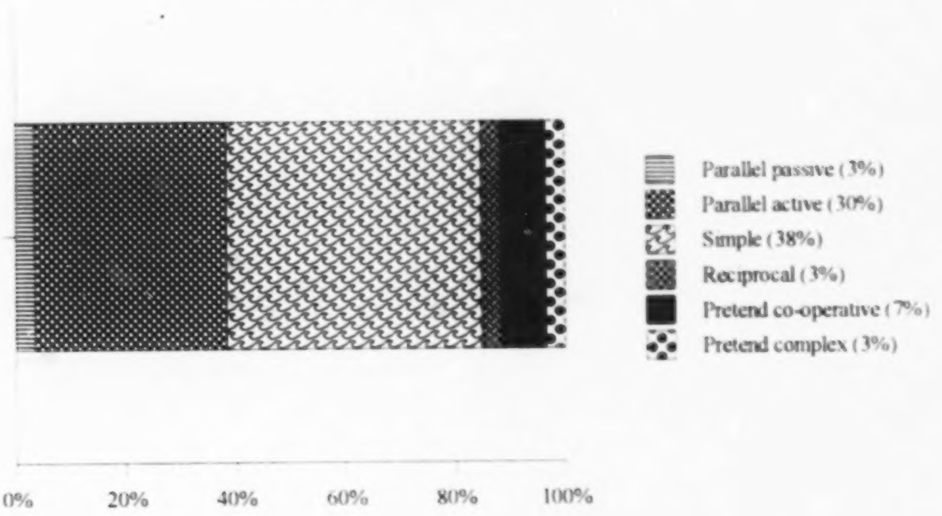
The Nature of Children's Activities

We saw very little aimless wandering (1 percent), or aggression (2 percent), in the study ECSs. However, 28 percent of the children showed aggression on at least one observation, though only a quarter of these were aggressive more than once. Eight children showed aggression on at least 3 of the 15 observations.

The next figure shows that most children were fully engaged, playing/working with other children, at a fairly straightforward level. There was little evidence of the more sophisticated levels of interaction through play, though 29 percent of the children in the study were engaged in reciprocal play for at least one of their observations, and 66 percent were involved in pretend play.

Figure 7

Level of Social Skills Observed in ECS



The scale used in the figure above is the Howes Peer Play Scale (Howes, 1980).

Parallel-passive play describes situations where a child is beside others, but not actively engaged in the same activity, such as a child watching other children making collage items at the same table.

Parallel-active play describes children working alongside each other on similar activities, without interaction—such as 2 children making collage items at the same table.

Simple play, the next level up, includes some interaction, not necessarily through language; for example, a child can ask another to pass the glue, or comment on his or her neighbour's work.

Reciprocal play describes action reversals, with a clear turn-taking sequence, such as games of hide and seek, or throwing a ball.

Pretend play, of which there are 2 levels, is the most sophisticated category of children's peer interaction in play. *Co-operative pretend play* is simple play with an added dimension. Children work from a "script", with clear roles, and a sequence. For example, children who do not just roll dough out at the dough table, but turn their work into biscuit making, describe ingredients such as chocolate chips or nuts, put shapes into an "oven", and finally "taste" them are showing co-operative pretend play. This is simple play with an added dimension.

In *pretend-complex play*, children show awareness of their own invented script: they assign roles, they direct each other to the next act. So, using the baking example, a child might say "Now you be the mother and ask us to clean up". Children move in and out of roles, showing an understanding of social interaction, and a willingness to initiate and comment on it.

Pretend-play calls on greater awareness of different social situations; it also calls on more social skills than working alongside other children. Two-thirds of all the children in our study were engaged in pretend play in at least one of our observations.

Eight percent of our observations showed children exploring with material objects, and 3 percent actively solving conceptual problems using language. However, a third of the children showed some explorative activity on at least one of our observations.

Adult-child Interaction

Fifty percent of our children had some interaction with an adult during the time of our observation. For 16 percent, this was at group level only, for example, listening to stories, or instructions. Adult-child interactions were often short verbal exchanges (36 percent of the adult-child interactions). Conversations between an adult and child accounted for a fifth of these observations. In 18 percent a child was responding appropriately to an adult request or instruction. Four percent of our observations involved a child requesting help or information from an adult. In only 7 percent of the observations of interactions was a child rude to an adult, ignored the adult, or rebuffed their suggestion.

It was very rare for ECS teachers to show negativity to children in their care. We saw this in only 2 percent of the interactions we observed between children and adults in the study ECS.

The level of adult-child interaction and its tone paralleled the largely pragmatic engagement of the children's play with or alongside each other. While 27 percent of the adult-child interactions were classified as "intense", involving an extended conversation or exploration between the adult and child, 40 percent were classified as "simple/elaborated" (adult responses to children's social bids without extension of the topic in conversation, interactive play, or suggestion of materials for the child's play), and 31 percent as "minimal". Twenty-two percent of these interactions involved some cognitive language extension activity between the adult and child.

Relations Between Immediate Group Size and Presence of Adults in the Patterns of Children's Social Skills, Problem-solving, and Adult-child Interaction

What difference does the size of the child's immediate group, and the proximity of an adult, make to a child's activity? Our analysis came up with some expected answers, some of which may be a surprise.

The second level of children's social skills, parallel active play, was most likely to occur if there was more than 1 adult present, and if children were in groups of 2 or more. Simple social skills, the middle level of the scale of children's peer social skills which we investigated, were most likely to occur if children were with one other child, or in groups of 2 to 5 children. Sixty percent of the occasions when this level of children's play was observed did not involve any interaction with adults.

The 2 most complex levels of play were more likely to occur if adults were not present, and with 1 child, or up to 5 children, but not more. Thus, an adult presence was on the whole associated with the second level of play, and the more complex levels of play were more likely if children were in groups of fewer than 5.

Sixty percent of children playing with just one other child were not close to an adult and had no adult interaction, much the same as the 53 percent of the children playing in groups of 2 to 5 children.

The incidence of children's problem-solving activities showed no variation related to how close an adult was to a child, but verbal problem-solving was almost twice as likely to occur if there was only one adult relating to the child. Again, groups of fewer than 5 children were more likely than larger group sizes to produce problem-solving, whether verbal or exploration with materials. Children playing on their own had the highest rate of exploring with material, 14 percent.

Adult conversations with children were most likely when the child was alone: 17 percent compared with 7 percent of the observations made of groups of 2 children, 6 percent of the groups of 2 to 5 children, and 3 percent of the groups with more than 5 children.

Verbal aggression was marginally more likely to occur if an interacting adult was more than a metre away from the children. Physical aggression was marginally more likely to occur in groups of fewer than 5 children, than it was in larger groups. This may reflect the fact that often when children were in groups of more than 5, adults were close by.

Forty-nine percent of the interactions with adults in groups of more than 5 children were only at the group level, compared with 14 percent of those in smaller groups. Group-level interactions were much the same whether there was more than one adult, or whether an adult was more than a metre away from the children (40 percent each, compared with 24 percent of the situations where one adult was within a metre of the child).

Children's conversations with adults were 3 times more likely to occur if the adults were on their own, than if there was another adult present as well, or the adult was more than a metre distant from the child.

As far as quality of adult-child conversation went, again chances were better that the conversation would be more involving or demanding if there was only one adult, who was near the child.

Intense conversation with an adult was most likely to occur if a child was alone (19 percent of the times when children were observed on their own). It was least likely to happen if children were in groups of more than 5 (2 percent). However, group size made no difference to the incidence of simple or elaborated conversations.

Cognitive language extension was twice as likely to occur if there was only one adult within a metre of the child, than if the adult was further away, or if there was more than one adult with the children. Children on their own had their language extended in 13 percent of the observations, twice the rate of those in small groups, and 4 times the rate of those in groups of more than 5 children.

Verbal problem-solving or knowledge-seeking was much more likely to involve interaction with an adult than exploration of materials, with 3 times as much conversation, 5 times as many children's requests for help or information, and 3 times as much physical contact between adult and child.

Perhaps what is of most interest from this analysis of the relationship between internal group size (rather than overall group size) and proximity of adults is that it is not the absolute number of adults that count. One adult (nearby) is better than 2 adults when it comes to the quantity and quality of adult-child interaction.

A child alone is more likely to receive adult attention through conversation, and to have opportunities for language extension. This raises an interesting question about whether this is because adults feel that children should not be on their own—and if not with other children, need an adult with them. Yet children on their own had the highest rate of exploring with materials.

The other situation in early childhood education centres which appears to foster deliberative exploration and problem-solving is where one child is engaged with a small group of children.

However, this was at half the rate of children on their own. Perhaps more emphasis could be given in early childhood teacher development to working with groups of children rather than individuals.

Small groups of children had the best chance of seeing more sophisticated peer social skills at work.

We analysed our observations to see whether there were any differences in patterns related to whether the children were indoors or outdoors, the age range catered for by the early childhood service, and the type of service. As well, we looked to see whether there were different patterns for boys and girls of peer and adult interaction, exploration, and aggression.

Indoors and Outdoors

Patterns of behaviour are often said to be different according to whether the children are inside or outside. We found in our observations that children indoors were more likely to have an adult within 1 metre proximity, 41 percent compared with 31 percent, and more likely to be in group sizes of more than 5 children, 24 percent compared with 12 percent. But groups of between 2 to 5 children were more frequently found outside than inside, 52 percent compared with 39 percent. Children were just as likely to play/work with one other child outdoors as indoors.

Location did affect the kind of interaction that children had with their peers. Outdoor play was twice as likely to show the more complex levels of play identified by Howes as showing the exercise of social skills: 19 percent of the outdoor observations showed reciprocal or pretend play, compared with 9 percent of those made inside. This would underlie the importance of maintaining the provision of outdoor space in early childhood service regulations.

Patterns of exploration or aggression were not affected by the location of play.

Interaction with adults at a group level was, as we have seen indicated by the higher frequency of large group size indoors, more likely inside: 19 percent compared with 12 percent.

Age Range

There was less adult-child interaction in preschool ECSs, 51 percent compared with 37 percent in mixed ECSs. Conversations between adults and children were also more likely in the mixed-age-range ECSs, 13 percent compared with 6 percent. Adults at the mixed ECSs were slightly more likely to hold intense conversations with children, 12 percent compared with 8 percent. Our target children at mixed-age ECSs were more likely to experience warm, positive, adult behaviour, 20 percent compared with 13 percent—but we also noted a higher incidence of no close contact in the adult-child interaction at these centres, 19 percent compared with 14 percent. The higher proportions here may simply reflect the fact that there was more engagement with adults in the mixed-age-range centres. For example, while 9 percent of our observations in the mixed ECSs showed our target children engaged in language extension with their teachers, compared with 6 percent in the preschool ECSs, 30 percent of those in mixed ECSs had no cognitive language extension in their adult-child interaction compared with 22 percent in the preschool ECSs.

Type

The next table sets out the patterns of children's interaction with adults at the different ECS types in our study.

Table 41

Adult-child Interaction Observed in Study ECS

Behaviour	Kindergarten (N* = 1478) %	Playcentre (N = 1426) %	Childcare (N = 1422) %	Family Day Care (N = 385) %	A'oga Amata (N = 150) %
Adult Interaction					
No interaction	60	41	48	38	44
Group level	15	16	19	4	40
Conversation	4	9	5	21	1
Child request for help/information	3	5	4	7	1
Intensity					
Minimal	6	11	11	10	9
Simple/elaborated	10	15	12	17	4
Intense	6	12	5	21	1
Physical Contact					
None	11	15	16	28	4
Warm	11	21	12	17	7
Hug/hold	1	2	1	1	2
Language Extension					
None	17	29	24	32	9
Some	6	9	4	16	2
Tone					
Positive	22	38	28	46	15
Negative	0	1	1	2	0

* Refers here to the number of observations made of children's behaviour.

The larger group sizes and higher adult-child ratio in kindergartens are evident in the significantly higher proportion of kindergarten children who have no interaction with their teacher compared with the other ECSs. The A'oga Amata teaching approach shows in the strong proportion of children who interacted with adults at the group level. Opportunities for conversation with adults were highest in centres with the lowest ratio, Family Day Care.

Opportunities for intense interaction with adults are highest in Family Day Care and playcentres. The high numbers of those children in Family Day Care centres having no physical contact with their carers may simply reflect the higher numbers of children in those centres having some interaction with adults. Opportunities for language extension through adult-child interaction were highest in Family Day Care and in playcentres.

The next table shows the children's interaction with their peers, exploration, and aggression.

Table 42

Children's Behaviour Observed in Study ECS Types

Behaviour	Kindergarten (N* = 1478) %	Playcentre (N = 1426) %	Childcare (N = 1422) %	Family Day Care (N =385) %	A'oga Amata (N = 150) %
Solitary					
Solitary play	9	9	5	14	12
Aimless wandering	1	1	1	0	2
Observing	3	3	2	3	1
Peer Social Skills					
Parallel—passive	4	2	4	1	3
Parallel—active	26	33	31	14	46
Simple	43	36	43	37	34
Reciprocal	4	2	3	2	1
Pretend play					
—Co-operative	7	6	8	9	1
—Complex	3	3	3	3	1
Exploration					
Verbal problem-solving	3	4	2	6	0
Materials/play	8	8	8	8	2
Aggression					
Verbal	1	1	2	1	2
Physical	1	1	2	1	0

* Refers here to the number of observations made of children's behaviour.

There are some striking similarities and some interesting differences between the types. Solitary play is most evident in Family Day Care and A'oga Amata—one service type with very small numbers of children, and one with group sizes comparable to others. The Family Day Care children play less with other children, as is evident in the section on peer social skills. However, their level of the more complex play is as high as that of the group services. This is not so evident with A'oga Amata. The comparatively high level of parallel active play there reflects the rather different curriculum emphasis in A'oga Amata, and its more structured approach.

Family Day Care children again benefited from their very low group size and low adult to child ratio by having more cognitive language extension with their ECE teachers.

Gender

The only gender difference to emerge in our observations was that boys were twice as likely as girls to show verbal or physical aggression, 4 percent compared with 2 percent. Thirty-four percent of the boys were aggressive in at least one of our observations, compared with 20 percent of the girls.

Summary

The overall impression these observations yield of children's actual experience in the study ECSs is that children are absorbed in what they do. There is very little aggressive behaviour, or sign of boredom; the tone is busy and positive.

Most of the time they are engaged in activities which centre on material objects, and they often do this in the company of other children. Many also enjoy periods of more intensity, when they explore beyond the boundaries of their present knowledge and confidence with early childhood education teachers, with the materials and activities which make such learning opportunities available in ECSs, and in their games with other children. Children on their own are more likely than others to explore materials, to attract adult attention, and thus opportunities for language extension. Children in small groups without an adult are more likely than others to try the more sophisticated levels of play.

If we are looking for pointers for early childhood education practice, then the material reaffirms the value of small rather than larger groups for children of this age. It also suggests that more advantage should be taken of the fact that in ECS centres children often form small groups to work with other children on language and exploration in these settings. It is clearly very difficult for ECS teachers working with large groups, and with high ratios of children to staff, to engage in conversation and discussion with children which extends their language on an individual basis.

There were no clear differences between mixed-age and preschool ECS—which may indicate how widely accepted in New Zealand is an activity-based curriculum for children of this age. Outdoor play appeared to foster more opportunities for the more complex levels of play, indicating that relaxing the regulations which ensure that ECS centres do have outdoor space for children's play may be at a cost.

CHAPTER 9

QUALITY OF THE STUDY ECSs

Quality Ratings

In this section we present the results of our ECS quality ratings, outline the associations found between the ratings and the ECS structural characteristics described in chapter 7 and the family characteristics described in chapter 4, and discuss their meaning.

The development of our quality ratings is described in appendix 6 of the Technical Appendices. The instrument was designed to suit all ECS types. We drew on existing United States research instruments which focus on developmentally appropriate practice for children of this age, and address the *process* aspects of early childhood education experience which have been linked in previous research to positive experiences for children (concurrent outcomes), and the enhancement or development of social and cognitive competencies (concurrent and continuing outcomes).

Early Childhood Centre Rating Scale

Each ECS taking part in the intensive study was rated on at least 3 occasions on the quality of its provision. The data below give a count of *all* visits to the centres in the study, with a range of 3 to 9 visits reported (72 percent of the visits are of ECSs which were rated on 3 occasions, 13 percent are of those which were rated on 4 occasions, 12 percent of those which were rated on 5–6 occasions, and 2 percent of those which were rated on 7–9 occasions).

Twenty-eight percent of the visits were to childcare centres, 26 percent to playcentres, 24 percent to kindergartens, 20 percent to Family Day Care centres, and 2 percent to A'oga Amata.

The number of staff or adults responsible for the children in the early childhood education setting ranged from 1 to 10, with an average of 2.9 staff in any one ECS. The children to staff ratio was up to 5 children per one ECS staff member for 46 percent of the ratings, between 6 to 10 children to one staff member for 29 percent of the ratings, and 11 or more children to one staff member for 25 percent of the ratings.

Parent-helpers were present on 37 percent of the visits (ranging from 1 to 6), and volunteers on 9 percent of the visits (with a range of 1 to 4). Visitors (other than the field worker) came to early childhood services on just under half the visits—usually one visitor, but ranging up to 10 visitors.

The rating instrument was divided into 4 subscales, with each item rated on a scale of 1–5, corresponding with the descriptions: never, hardly ever, occasionally, often, and always. A full description is given in the appendix. The next table shows the range and average scores for each of the four subscales.

Table 43

Average ECS Quality Ratings

(N = 379) Subscale	Average %	SD %
Self-esteem	78.20	15.60
Physical environment, resources, and safety	71.28	13.68
Programme/activity focus	65.97	16.28
Staff-child interaction	64.56	12.16
Total	70.54	11.06

The overall quality of New Zealand ECSs appears to be somewhat higher than in the United States, with less variability. A recent US study of 401 childcare centres found an average quality of 4 on a 7-point scale (which equates to 57 percent) and deemed this "mediocre" (Helburn, 1995, p. 136). A 5 on the US scale (which equates to 71 percent) is regarded as good—or sufficient—quality. The median overall score for our rating scale was 71 percent. The range was from 38 percent to 89 percent.

However, although half the observations made of the ECSs in our study could be said to be of adequate quality to meet young children's needs, half the observations also fell below this standard.

The distribution of scores for each item in each subscale is set out in the next 4 tables. The most telling items are those which have high numbers of ratings achieving the maximum score, and conversely, those with sizable numbers achieving low scores of 1 or 2.

Table 44

Self-esteem Ratings

(N = 379) Item	5 %	4 %	3 %	2 %	1 %
Children usually allowed to complete activities	38	45	13	4	1
Children's play activities not sex-stereotyped	28	38	23	7	1
Children support each other and co-operate	8	64	23	2	1
Tikanga Maori and/or te reo Maori evident	2	12	26	35	25
Children's cultures recognised/accepted	2	8	28	36	25

The poorest scores of all the subscales were to be found for the items focusing on tikanga Maori or te reo Maori, and the recognition of the different cultures in New Zealand society. While this is a reflection of the ethnic composition of our study ECSs, the total absence of the indigenous culture in a quarter of the ratings, and its scant appearance (in a few words or pictures) in another 35 percent, is cause for concern, given the politically and socially acknowledged need to redress past wrongs and forge a new respect for Maori culture and language. Similarly, with a new wave of immigration as well as the resurgence of Maori culture, New Zealand is becoming more culturally diverse, and children will need some awareness of differences if we are to become a more tolerant society and to make use of the full range of our human diversity.

Maximum scores were also rare for the Programme/Activity subscale. The exception was children's ability to select their own activities from a variety of learning areas, which should mean that they selected those of interest, and therefore those they were likely to tackle with concentration (*see* the discussion of the Perseverance competency items in chapter 1). Just under half the ECSs offered a "print-saturated" environment (by which we do not mean didactic concentration on reading and writing). Indeed, the reading or telling of stories was rare on 34 percent of the occasions when the ratings were done.

Table 45

Programme/activity Focus

(N = 379) Item	5 %	4 %	3 %	2 %	1 %
Children can select own activities from a variety of learning areas	40	24	27	6	3
Child-initiated imaginative play occurs	12	40	33	8	8
Evidence of children's creativity—(e.g., children's current artwork displayed)	11	43	25	6	15
Children experiment with social and maths/science problems themselves	9	35	33	15	7
Print-saturated environment	8	36	38	10	8
Stories are read/told/shared	7	31	29	11	23

Maximum scores were also infrequent for the Staff-child Interaction ratings. The two items which stand out from this subscale are the low frequency with which staff asked open-ended questions encouraging children to choose their answer, and staff joining children in their play.

Table 46

Staff-Child Interaction Ratings

(N = 379) Item	5 %	4 %	3 %	2 %	1 %
Staff are responsive to children	20	52	28	1	0
Staff model and encourage children to use positive and explanatory guidance/discipline	18	51	29	2	1
Staff model/guide children in centre activities	14	45	33	7	1
Staff join children in their play	10	35	34	9	11
Staff ask open-ended questions that encourage children to choose their own answer	6	35	38	17	3

In looking at the specific items for the Physical Environment subscale, we find that while the maximum score is least likely to be achieved for good safety practices, very few ECSs had poor safety practices. The two items most likely to have poor scores were children's access between indoor and outdoor activities, and the provision of activities to encourage the development of children's gross-motor skills (such as balancing or ball-throwing).

Table 47

Physical Environment, Resources, and Safety Ratings

(N = 379) Item	5 %	4 %	3 %	2 %	1 %
Fine-motor skills encouraged	53	28	12	6	2
Gross-motor skills encouraged	43	26	17	9	4
Enough age-appropriate toys/ books/equipment to avoid waiting, competing, fighting	41	39	16	3	1
Easy and free access between inside and outside	39	18	16	7	11
Good safety practices	15	54	29	2	0

Can we use just one subscale to judge the overall quality of an ECS? The answer is no. The level of correlation between the 4 subscales was not high.

The strongest associations were found between the Programme/interaction subscale and the other 3 subscales: an association of r = 0.57 (where 1 indicates a perfect association), with the Staff-child Interaction subscale, of r = 0.63 with the Self-esteem subscale, and of r = 0.69 with the Physical Environment subscale.

Other correlations were r = 0.37 between Staff-child Interaction and Self-esteem, r = 0.47 between Staff-child Interaction and Physical Environment, and r = 0.49 between Self-esteem and Physical Environment.

The correlations between subscales were higher for playcentres and kindergartens than for other ECS types, indicating a more tightly woven configuration of aspects of quality ECE provision in those ECSs.

On the whole, however, the level of correlations indicates that one would be wrong to assume that strength in one aspect of quality necessarily assures equal strengths in other aspects of quality ECS provision, though the quality of staff-child interactions and the physical environment provide better indicators of overall quality than other aspects. This lack of strong correlations between the subscales points to the multifaceted nature of ECS quality. It also indicates the difficulties parents face in making informed decisions about the quality of any ECSs they are considering for their child.

Variations of Quality Amongst ECS Types

Each ECS type is a different amalgam of group size, children to staff ratio, ECS staff training, ethos, and programme emphasis. Variability of quality was greatest amongst the Family Day Care settings, which is not surprising considering the greater variability of education and ECE training amongst Family Day Care caregivers.

Table 48

Early Childhood Centre Visit Ratings—Average for Types

(N = 379) ECS Type	Interaction %	Self-esteem %	Programme %	Resources %	Total %
Playcentre (N=97)	78.20	70.20	78.42	73.63	79.18
Kindergarten (N=88)	75.36	71.96	77.39	88.36	78.41
Childcare[19] (N=104)	68.70	61.76	64.50	60.01	67.19
A'oga Amata (N=14)	65.32	70.68	63.84	73.32	68.17
Family Day Care (N=76)	62.48	52.00	42.26	63.08	55.82

Playcentre and kindergarten scored consistently higher on average than other ECS types. The next set of ECS types were Childcare and A'oga Amata, followed by Family Day Care. It is possible that the lower scores for Family Day Care reflect the fact that someone's own home is being used to provide ECS. For example, it may be more difficult to display children's current artwork, or to supply a comprehensive range of activities. However, variability amongst the lower scoring ECS types, as shown by the standard deviations (SD) in the next set of tables, was often wider than in the higher scoring ECS types.

Table 49

Staff-child Interaction Ratings Means and Standard Deviations by Type

(N = 379)	Kindergarten (N* = 88) %		Playcentre (N = 97) %		Childcare/ private preschool (N = 104) %		A'oga Amata (N = 14) %		Family Day Care (N = 76) %	
Item	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*
Staff are responsive to children	3.97	*0.63*	4.08	*0.67*	3.76	*0.7*	3.71	*0.61*	3.83	*0.77*
Staff model and encourage children to use positive and explanatory guidance/discipline	4.18	*0.7*	3.93	*0.7*	3.78	*0.68*	3.29	*0.47*	3.5	*0.96*
Staff model/guide children within ECS activities	3.73	*0.6*	3.99	*0.68*	3.72	*0.77*	3.71	*0.61*	2.92	*1.01*
Staff join children in their play	3.38	*0.61*	3.98	*0.84*	2.91	*1.03*	3.71	*0.91*	2.45	*1.33*
Staff ask open-ended questions that encourage children to choose their own answer	3.6	*0.6*	3.57	*0.86*	3.0	*0.81*	2.5	*0.7*	2.83	*1.11*

Note: N refers to the number of ratings made.

Staff training, programme emphasis, and differences in ECS ethos are likely to be related to the different scores on the Staff-child Interaction subscale. Only one item within this scale was relatively consistent across all ECS types: ECS staff responsiveness to children. ECS staff were generally positive and interested in the children they worked with. The differences emerge more in what they do with that interest, perhaps indicating differences in perceptions of their role as ECS teachers.

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[19] This includes private preschools

Table 50

Self-esteem Ratings Means and Standard Deviations by Type

	Kindergarten		Playcentre		Childcare/ private preschool		A'oga Amata		Family Day Care	
(N = 379)	(N = 88) %		(N = 97) %		(N = 104) %		(N = 76) %		(N = 14) %	
Item	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*
Children's play activities not sex-stereotyped	3.94	*0.78*	3.91	*0.93*	3.85	*1.16*	4.36	*0.63*	2.97	*1.68*
Tikanga Maori and/or te reo Maori evident	3.06	*0.85*	2.57	*0.78*	2.48	*0.96*	1.29	*0.47*	1.11	*0.31*
Children's cultures recognised/accepted	2.83	*0.93*	2.42	*0.75*	2.06	*1.02*	3.21	*1.19*	1.34	*0.66*
Children support each other and co-operate	3.95	*0.5*	3.92	*0.51*	3.63	*0.65*	4.07	*0.62*	3.16	*1.43*
Children usually allowed to complete activities	4.20	*0.53*	4.74	*0.44*	3.42	*0.81*	3.57	*0.65*	4.5	*0.62*

A'oga Amata, which are focused on meeting the needs of a particular culture, show the strongest average score for the recognition of children's cultures, followed by kindergarten, which was the ECS type serving the most diverse range of children. However, variability within types was high in this item. The more structured programmes found in A'oga Amata and the private preschools show in their lower average score for the item of children being allowed to complete their activities. But this difference in structure appeared to be a difference of degree, rather than kind: a strongly didactic programme would have shown much lower scores on this item, according to overseas research (Stipek, Daniels, Milburn, & Feiler, 1993; Weikart, 1991).

Table 51

Programme/activity Focus Means and Standard Deviations by Type

	Kindergarten		Playcentre		Childcare/ private preschool		A'oga Amata		Family Day Care	
(N = 379)	(N = 88) %		(N = 97) %		(N = 104) %		(N = 76) %		(N = 14) %	
Item	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*
Children can select activities from a variety of learning areas	4.72	*0.45*	4.76	*0.45*	3.42	*0.8*	3.43	*0.94*	2.7	*0.97*
Print-saturated environment	3.65	*0.53*	3.68	*0.78*	3.61	*0.81*	3.07	*0.62*	1.79	*0.74*
Stories are read/told/shared	3.57	*0.91*	3.3	*1.1*	3.0	*1.07*	3.14	*1.23*	1.37	*0.78*
Children experiment with social and maths/science problems themselves	3.49	*0.61*	3.78	*0.88*	3.07	*1.11*	2.57	*1.02*	2.55	*1.14*
Child-initiated imaginative play occurs	3.86	*0.73*	4.0	*0.66*	2.88	*1.06*	3.79	*0.7*	2.76	*1.13*
There is evidence of children's artwork and creativity	3.95	*0.57*	4.02	*0.65*	3.40	*0.79*	3.57	*0.76*	1.43	*0.85*

The difference in programme structure also emerges in the average scores for A'oga Amata and childcare for child-initiated imaginative play, and evidence of children's artwork and creativity in the ECS. However, the lowest average scores for items on this subscale were found in Family Day Care—even for the item of reading or telling stories, which one might have thought would fit easily into a home ECS setting. The low Family Day Care scores here may reflect fewer resources of equipment and materials. The generally lower educational levels and lack of ECE training of Family Day Care caregivers are also likely to be linked to the low occurrence of activities which would extend children's cognitive and problem-solving capacities.

Table 52

Physical Environment, Resources, and Safety Ratings

	Kindergarten		Playcentre		Childcare/ private preschool		A'oga Amata		Family Day Care	
(N = 379)	(N = 88)		(N = 97)		(N = 104)		(N = 76)		(N = 14)	
	%		%		%		%		%	
Item	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*	mean	*SD*
Enough age-appropriate toys/books/equipment to avoid waiting, competing, fighting	4.61	*0.58*	4.65	*0.52*	4.05	*0.63*	3.5	*0.7*	3.32	*1.0*
Good safety practices	3.97	*0.69*	3.93	*0.63*	3.88	*0.65*	3.5	*0.58*	3.54	*0.74*
Fine-motor skills encouraged	4.77	*0.42*	4.66	*0.56*	4.38	*0.75*	3.79	*0.89*	3.0	*1.13*
Gross-motor skills " "	4.72	*0.61*	4.52	*0.82*	3.52	*1.11*	3.64	*0.84*	2.83	*1.34*
Easy and free access between inside and outside	4.02	*1.29*	4.4	*1.41*	2.2	*1.41*	3.36	*0.84*	3.08	*1.85*

Good safety practices were much the same for the 5 ECS types in the study. Family Day Care and A'oga Amata[20] were less well resourced than others. Fine-motor skills were most encouraged in 3 of the 4 group-care settings, but gross-motor skills were more encouraged in the group-care settings with less structured programmes, namely kindergarten and playcentre.

Quality and Patterns in Children's Behaviours

Our quality ratings were based on field workers' summing up of their observations of both "structural" (e.g., in the resources available to children), and "process" (e.g., the interaction between staff and children, the level of children's play, the degree of literacy activities). Each subscale was in fact composed of both structural and process variables. Our observations, on the other hand, were largely concerned with aspects of process, and concentrated on individual children, over the short space of a minute at a time. Were there any statistically significant relationships to be found between them? Would we observe different patterns of children's behaviour in ECSs of different quality, as measured on our scale?

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[20] All 3 A'oga Amata centres in our study were only a few years old.

We found that the frequency of children's exploration increased in our observations as the rating of the ECS increased on all 4 subscales. The frequency of children extending their language through discussion with adults also tended to increase as scores rose on the Staff-child Interaction and Physical Environment subscales. Children showed more aggression in ECSs which scored in the lowest quartile of the Staff-child Interaction and Physical Environment subscales. However, the incidence of the most sophisticated level of play, Pretend play, tended to increase as ECS ratings decreased on the Staff-child Interaction and Self-esteem subscales. The associations between the quality ratings and frequencies of children's behaviour were at the indicative level.

Quality and Structure

The structural characteristics most consistently associated with the ECS quality ratings were group size, ECS type, the proportion of qualified staff, i.e., with an ECE diploma, and the highest staff salary paid at the ECS. The last 2 were each significantly associated with 3 of the 4 subscales, and group size and ECS type showed significant associations with all 4 subscales.[21]

Staff qualifications and highest salary are associated with ECS quality as one might expect: quality ratings increase with an increasing proportion of qualified staff, and higher salaries paid to staff. Group size does not have quite the impact reported from overseas: larger group size is associated with higher quality ratings rather than the reverse.

The variables of children to staff ratio, roll stability, and staff stability are indicatively rather than significantly associated with the quality ratings—and, as with group size, in the reverse direction of the overseas findings.

The fact that ECS type also shows strong associations with the quality ratings raises important questions about the applicability of overseas research to the quality of early childhood education to New Zealand.

The first explanation is that most overseas studies of ECS quality have restricted themselves to collecting data on only one ECS type. Certainly, when our data allowed it, we found the same kinds of associations of quality with group size and children to staff ratio emerging when we compared ECS ratings *within* type in relation to children to staff ratios. Our data restricted our making this kind of internal analysis not just because of the numbers of each ECS in our sample, but also because the differences within type in relation to these characteristics are minimal. Each type is distinguished by a different configuration of group size, children to staff ratio, and staff training. To give an example, we had no kindergartens offering a ratio of 1:5 children (they are staffed on a 1:15 basis), and no childcare, Family Day Care, or A'oga Amata with ratios beyond 1:10. No kindergartens, childcare, or A'oga Amata had a total group size of 10 or fewer children. The Family Day Care ECSs, which generally had lower quality rating scores, were, however, all within this group size, thus explaining why the association with group size went in the opposite direction from the overseas findings (groups of less than 10 rating lower on all 4 subscales than bigger groups).

The second explanation is that although there are distinctive patterns of characteristics fitting each ECS type in New Zealand, the overall variability within the structural characteristics is also smaller than in the United States where much of the research literature on ECS quality has been done. The

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[21] The details of the analysis summarised here can be found in the separate Technical Appendices volume, available on request from NZCER.

United States has less regulation of ECSs, and does not relate government funding to staffing levels. In looking at this age group, 88 percent of the ECS programmes in one recent national US study met state regulations for average staff-child ratios—in states which had such regulations, and between 68–70 percent met NAEYC[22] standards in a range of studies (Galinsky & Friedman, 1993). One hundred percent compliance with New Zealand state regulations is necessary for centres to continue to receive government funding. Our current regulated ratios for this age group are, however, larger than the NAEYC and HEWDCR[23] recommendations of 1:10, where group size is 20 or more children.

Teacher turnover is another area where New Zealand has less variability than overseas—or had at the time of our study.[24] Half the ECSs in one national US study experienced some teacher turnover in the previous 12 months (Galinsky & Friedman, 1993), compared with 31 percent of the ECSs in our study.

There is also a third and further explanation: that ECS structural characteristics do not operate mechanically, or separately from one another—they impinge upon one another, and alter each other's potential effects. Thus the higher levels of kindergarten staff training can mitigate, albeit not eliminate, the demands of the larger group sizes and higher children to staff ratios in kindergartens through offering a higher quality programme. Conversely, the favourable children to staff ratio for Family Day Care and small group size does not seem sufficient always to ensure that appropriate activities for children of this age are offered.

If each type can be seen as a distinct configuration of structural characteristics, then strategies for improvement are likely to differ for each type. Lowering group size and the children to staff ratio is likely to improve the quality of kindergartens, and increased training for caregivers would improve the quality of Family Day Care. Policy making based on a "one size fits all" principle is unlikely to be able to deliver improvements to the quality of New Zealand ECSs.

Group Size

The overall group size, or total number of children attending an ECS at any one time, emerged as a significant contributor to ECS quality through the highly influential National Day Care Study done in the United States in the 1970s (Ruopp, Travers, Glantz, & Coelen, 1979). Teachers in childcare centres with groups of 12 or fewer children interacted more with the children, and the children showed more involvement in the ECS activities, were more verbal, made greater gains in standardised tests, and were less aggressive. Later studies have suggested some refinement of this association, with more emphasis on children to staff ratios and ECS staff training, and some studies have concluded that the relationship between ECS quality and overall group size is curvilinear, that is, that both very small and very large group sizes are less productive for children's development than groups sufficiently large to offer opportunities for interaction with different peers, but sufficiently small to ensure interaction with ECS staff (e.g., Clarke-Stewart & Gruber, 1984; Kontos & Fiene, 1991).

Our study did not produce a curvilinear or linear result, but rather, a zigzag. The table below gives the associations, all of which were significant.

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[22] National Association for the Education of Young Children.

[23] Health, Education, and Welfare Day Care Regulations.

[24] However, turnover seems to have increased since 1994 to 45 percent of all kindergarten positions in 1995; no national data are available on the other ECS types (Early Childhood Education Project, 1996, pp. 20–21).

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Table 53

Results of One-factor Modelling of Quality Ratings Against Group Size

Quality Rating	1–10	11–20	21–30	31 or more	Probability of F-value from anova
Staff-child interaction	15.6	19.1	17.8	18.5	$4.8\ 10^{-12}$
Self-esteem *	13.2	17.1	16.7	17.1	0
Programme/activity focus *	13.0	22.3	21.0	22.5	0
Physical environment, resources, and safety *	16.0	20.6	19.8	21.5	0
Total score (percentage)	55.0	75.3	71.7	75.7	0

However, different ECS types dominated different categories of group size. All but 4 of the 80 ratings of ECSs with group size of 10 or fewer came from Family Day Care; and 77 of the 113 ratings in the 21–30 group-size category came from the mid-scoring ECS types. Playcentres dominated the category of those with group sizes of 11 to 20, and kindergartens the category with the largest group sizes.

Taking ECS type into consideration (thus effectively removing the smallest group size), group size had an effect only on the Self-esteem subscale, where there was a significant difference ($p = 0.001$) between the scores of those groups with sizes 11–30, and the bigger groups. Kindergartens with the largest group size scored 4 percentage points less on the Self-esteem subscale than kindergartens with group sizes of 21–30. With private preschools, the other main contributor to the largest sized group, there was a difference of 7 percentage points.

Children to Staff Ratio

The ratio of children to staff is one of the confirmed hallmarks of ECS quality in the research literature (e.g., McGurk *et al.*, 1995; Renwick & McCauley, 1995; Wylie, 1989). In New Zealand, children to staff ratios fell into such clear groups related to ECS type that it was necessary to examine each ECS type separately.

Here a regression analysis was used. This graphed the ratio of children to staff found for each visit in relation to the ECS rating on each of the quality subscales, and computed the linear relationship between them. If the "slope" of the line between the 2 axes is zero, a change in the ratio has no effect on the quality rating. A negative slope means that a decrease in ratio would be associated with an increase in the quality ratings. The next table shows the results of the regression analysis of the relation between the Children to Staff ratio, and the Staff-child Interaction subscale rating.

Table 54

Associations between Children to Staff Ratio and Staff-child Interaction

ECS Type	Slope of Fit of Staff-child Interaction to Children to Staff Ratio	Probability that Slope is Zero
Family Day Care	-0.78	0.03
Creche/childcare centre	-0.18	0.64
Playcentre	-0.20	0.05
A`oga Amata	-0.54	0.38
Kindergarten	-0.22	0.08
Private preschool	0.28	0.10

The decrease in the Staff-child Interaction score as the children to staff ratio increases which is shown for Family Day Care, playcentre, and kindergarten can be considered indicative. It is quite likely that a larger sample would have shown this result to be statistically significant.

There were no significant or indicative associations between the Children to Staff ratio and the Programme/Activity quality rating subscale, within each ECS type.

The next table shows the associations between the Self-esteem subscale and the Children to Staff ratio. While an increase in the ratio improved the rating within Family Day Cares,with a statistical signifiance, it had a negative effect in childcare centres and kindergarten, again indicatively.

Table 55

Associations between Children to Staff Ratio and Self-esteem

Self-esteem for ECS Types	Slope of Fit of Self-esteem to Children to Staff Ratio	Probability that Slope is Zero
Family Day Care	1.00	0.0001
Creche/childcare centre	-0.70	0.02
Playcentre	-0.04	0.52
A`oga Amata	0.74	0.14
Kindergarten	-0.21	0.06
Private preschool	-0.15	0.33

The only statistically significant association found between the Children to Staff ratio and the Physical Environment subscale was within playcentres, a slope of 28 and a probability of 0.006. This means that an increase in the ratio in fact increased the resources available to children.

Thus it would seem that the Children to Staff ratio has most effect in the quality of relations between children and ECS staff: a confirmation of common sense, perhaps!

Interestingly, we did not find any association between the quality ratings and the children to interacting adults ratio, that is, the adults who spent most of the observation period in actual interaction with children, whether the adults were ECS staff or not. Thus it appears to be ECS staff rather than simply adults who can make a difference in the quality of children's early childhood education experience.

Stability of Staff and Children Attending the ECS

Higher rates of teacher turnover have been found in other studies to relate to less positive teacher and children's behaviour (Helburn, 1995, p. 138). In our study, staff stability had only one indicative association with only one of the quality subscales ($p = 0.06$ with one factor modelling, and $p = 0.04$ when ECS type was taken into account): ECSs with more than a third staff turnover in the previous year scored 8 percentage points lower on the Staff-child Interaction subscale than ECSs with no turnover, and 11 percentage points lower than those with less than a third staff turnover. Again, this makes common sense. A high turnover rate can disrupt adult:child relationships; but lack of turnover, or complete continuity, may engender staleness.

Over all, there was an indicative association also between the stability of the ECS roll, and Self-esteem ($p = 0.03$) but not in the expected direction: the ECSs with a high turnover of children on their roll were 8 percentage points ahead of those ECSs with a small turnover of children, and 12 percentage points ahead of those ECSs with stable rolls. This is explained by the fact that all the high turnover ECSs were kindergartens. Family Day Care were not included in this analysis because data were not collected on this variable for individual Family Day Care settings. None of the other quality subscales had any statistical associations with the stability of the rolls of the study ECSs.

Socioeconomic Profile of the ECS

The socioeconomic profile of school populations has been found to be associated with differences in educational provision and opportunity (e.g., Lauder & Hughes, 1990; Thrupp, 1994; Wylie, 1994). Would such an association also be found for ECSs? No associations were found initially. After controlling for ECS type, one indicative association was found, with the Staff-child Interaction subscale ($p = 0.04$); however, the cell sizes are small. Playcentre scores for those ECSs self-described as serving mainly middle-class or low- to middle-income groups scored around 8 percentage points more than those self-described as serving a wide socioeconomic range. There was little difference between private preschools serving low-income or middle-class children, but they scored around 10 percentage points more than those serving a wide socioeconomic range. The pattern was different for Family Day Care, with those projects described as serving middle-class children scoring around 14 points more than those projects serving low-income or low-to middle-income children.

The lack of significant associations, and the fact that the indicative association found did not consistently favour ECSs with a particular socioeconomic profile, suggest that children from different income groups were accessing ECSs of much the same quality.

Highest Staff Salary

Scarr, Eisenberg, & Deater-Deckard, (1994) found that it was possible to impute the quality of an individual US childcare centre from its highest staff salary. Smith (1995) confirmed a significant association between ECS quality and the highest staff salary in her study of 100 New Zealand childcare centres catering for under-2-year-olds. Our study provides further confirmation of the strength of this link between quality and highest staff salary.

Associations between the quality subscales and the level of highest staff salary were significant for 3 subscales, and indicative for the Self-esteem subscale ($p = 0.038$). Ratings on the quality subscales increased as the highest staff salary rose for Programme, Physical Environment, and Self-esteem.

On the Programme subscale, ECSs where the highest staff salary was $15 an hour or more were 23 percentage points ahead of those ECSs where the highest staff salary was less than $9 an hour, and 8 points ahead of those where the highest staff salary was between $9 and $15.

On the Physical Environment subscale, ECSs where the highest staff salary was $15 an hour or more were 14 percentage points ahead of those ECSs where the highest staff salary was less than $9 an hour, and 6 points ahead of those where the highest staff salary was between $9 and $15.

On the Self-esteem subscale, ECSs where the highest staff salary was $15 an hour or more were 9 percentage points ahead of those ECSs where the highest staff salary was less than $9 an hour, and 4 points ahead of those where the highest staff salary was between $9 and $15.

The scores on the Staff-child Interaction subscale were much the same for the 2 groups paid $9 or more, 11 percentage points ahead of those ECSs whose highest staff salary was less than $9.

The cell sizes after controlling for ECS type were often quite small: different ECS types also have different patterns of salary levels. In analysing associations within type, the findings are only suggestive. Nonetheless, in 3 ECS types, those centres with higher staff pay had higher average scores on the Staff-child Interaction subscale than other centres of the same type: a percentage point difference of around 4 percentage points for playcentres and private preschools, and 14 percentage points for Family Day Cares, but no difference for kindergartens.

Level of ECS Staff Training

Training of ECS staff emerges repeatedly in the research literature as related to the quality of ECS provision (discussions of the literature can be found in Doherty, 1990; Galinsky & Friedman, 1993; Smith, 1995; Wylie, 1989).

We measured the level of training for ECS staff in a number of different ways when we were analysing the association of training with ECS quality ratings.

Our first and most simple analysis was of the highest level of any staff member's ECE training or qualifications. In 43 of the 82 ECS ratings this was an ECE diploma (requiring a 3-year programme). The highest staff qualification in 14 of the ECS ratings comprised courses or modules amounting to the equivalent of 2 years' training, and, in 25 ECSs, the highest staff qualification amounted to less than 2 years' training.

This training measure showed significant associations with all 4 subscales, with a clear separation between those ECSs whose highest staff training or qualification was 2 or more years' ECE training, and those with only some training. The difference amounted to 18 percentage points on the total quality score.

After controlling for ECS type, however, only 2 indicative associations remained, with the Programme and Self-esteem subscales ($p = 0.06$ each). The cell sizes become small, or nonexistent, in all categories within each type, because each ECS type has a different ECE training and qualifications configuration. Nonetheless, within the one ECS type in our study which contained sufficient numbers in all 3 categories, playcentre, those playcentres whose highest staff ECE training was an ECE diploma were 9 percentage points ahead of those playcentres whose highest staff ECE training was equivalent to 2 years on the Programme subscale, and 11 points ahead of those with only some training. The result was similar for the Self-esteem subscale, where playcentres whose highest training was an ECE diploma leading other playcentres whose highest staff qualification was lower by at least 10 percentage points.

Because this first measure of ECS staff-training level relied on one staff member only, our next measure was a Weighted Training Score, in which we assigned points for each staff member's level of training: 9 for an ECE diploma, 4 points for 2-year training, and 1 point for some training, and then divided the total for the ECS by the number of ECS staff. The highest score was 9, and the lowest, 0, with a median of 2.9.

This Weighted Training Score was significantly associated with the total quality rating score (p = 0.00005), with ECSs scoring 9 on the Weighted Training Score 14 percentage points ahead of those ECSs scoring less than 2, and 8 percentage points ahead of those scoring 2–8 points. However, it was not significantly associated with the individual subscales other than Staff-child Interaction.

After controlling for ECS type, these significant associations were lost, indicating that ECS type had a greater impact than Weighted Training Score. This is not surprising, given the variability between ECS types in relation to their emphasis on staff training and qualifications.

We then took a slightly different approach to see whether it was the proportion of ECS staff with an ECE diploma that could be the important factor for describing training. We categorised the ECS on the basis of the proportion of staff with ECE diplomas: none (mostly Family Day Care), 1 to 99 percent, and 100 percent (mostly kindergartens). The ECSs whose staff all had ECE diplomas scored higher than others: a difference of 14 percentage points on the total quality score ahead of those ECSs with no ECE diploma, and 8 percentage points again ahead of those ECSs with some staff qualified with an ECE diploma. However, there was no association with the Staff-child Interaction subscale.

After controlling for ECS type, the association between the proportion of staff with the ECE diploma and the Total Quality score remained marginally significant, though reduced to p = 0.017. The association with the Programme subscale became indicative (p = 0.03), as did the association with the Self-esteem measure (p = 0.05).

Finally, given the strength of ECS type in this analysis of associations of ECE training with the quality ratings, and the frequency with which training (or sometimes general educational qualifications) has emerged as a vital factor in overseas research of ECS quality, we checked to see whether any masking of training effects was occurring from the children to staff ratio. We first controlled for ECS type, then the children to staff ratio. Indicative associations were found between the highest level of ECS staff training, and the Programme subscale (p = 0.07) and the Self-esteem subscale (p = 0.09). When we controlled first for the highest training level and ECS type, and then included the children to staff ratio, no associations at all were found. This suggests that the indicative effects for highest training level are real. It is likely that significant differences would have emerged had the sample sizes been larger.

Considerable confounding obviously occurs between ECS types, the children to staff ratio, and the highest training of any ECS staff member when the data are included in the same modelling process. We therefore pushed our exploration of the effects of ECE training on ECS quality to the limits of our sample by focusing only on playcentres, which had sufficient cell sizes of different children to staff ratios, and by looking only at the 2 subscales which had already shown indicative associations: Programme, and Self-esteem. After first controlling for the ratio, indicative associations remained for both subscales (p = 0.03), separating out those playcentres where the highest training was the ECE diploma from those with either a 2-year equivalent, or some training.

Associations Between Quality Ratings and Family Characteristics

Overseas research (Bolger & Scarr, 1995, Goelman, 1988; Phillips & Larner, 1994) has found that different families access ECSs of different quality for their children. Mostly this is associated with family income levels, but sometimes an association has been found with mothers' attitudes to paid employment, where paid employment is the prime reason for their child attending full-day early childhood education. Where government support for ECSs takes the form of targeted subsidies, the children of low-income and of high-income parents will tend to access better quality ECSs than children from middle-income homes who are not eligible for subsidies, and whose families cannot afford to pay for higher quality from their own earnings.

New Zealand operates a mixed model of government funding for ECSs. Most of the funding goes to individual ECSs, or the services or associations which administer them, with a set sum for each child attending. Most government funding is untargeted, that is, linked to parental income. There are some fees subsidies for low-income families using childcare and Family Day Care. In 1992 this targeted funding was increased. The enthusiastic take-up of this subsidy, which allowed low-income parents to afford access to the more expensive forms of ECSs, led to narrower criteria being introduced in 1993. Parents had to be employed, in training, or under stress to receive more than 9 hours of subsidised early childhood education. Thus fewer places are now subsidised.

Does this particular mixed model of government funding mean that New Zealand families of different income levels were able to access ECSs of similar quality?

The answer is generally yes. Only one statistically indicative relationship with family income was found, with the Staff-child Interaction subscale. Children from the lowest-income families were attending ECSs which were 5 percentage points behind others on this scale.

There were highly significant associations between the financial cost of the ECS to the family, and its quality in all 4 subscales, but these were *not* in the expected direction: increased cost to the family did not buy greater quality. The ECS costing parents less than $7 a week scored 8 to 10 percentage points ahead of those paying more than $7 a week. This suggests that it is the level and nature of government funding—the fact that most of it is *not* targeted to particular ECSs or income groups—that allows children to attend ECSs of comparable quality, regardless of their parental income.

However, there were some other significant associations between family characteristics and ECS quality.

Children from sole-parent families were more likely than those from 2-parent families to be in ECSs with lower scores on the Physical Environment and Programme subscales, a percentage point difference of 9 and 8 respectively.

Children whose mothers were employed full time were more likely to be attending ECSs with lower scores than those attended by their peers whose mothers were not in paid employment, or who worked part time. The difference in overall score was 6.5 percentage points.

Asian children were likely to be attending ECSs with lower scores for the Programme and Self-esteem subscales, a difference of 15 points and 6 points respectively compared with children from other ethnic backgrounds.

Children whose mothers had a tertiary qualification in fields such as teaching or nursing, or a university qualification, were likely to be in ECSs with higher ratings on the Staff-child Interaction subscale than others, a difference of 5 percentage points compared with children whose mothers' education stopped with school qualifications.

Finally, children whose parents felt they did not have enough opportunity to talk with their child's ECS staff were likely to attend ECSs with lower ratings on the Self-esteem subscale, a difference of 4 percentage points.

It is worth noting that we found no association between the quality rating of a child's ECS, and the parental perception of negative aspects to their child's ECS. It may be that our measure of parental perceptions is too loose. However, the lack of anything but an indicative association between parental satisfaction with their opportunity to talk to ECS staff about their child's time in the ECS on only one of the 4 quality rating subscales does indicate that these findings may add to the growing literature on the gaps between parental assessments of ECS quality, and assessments drawing on the research evidence about elements contributing to children's development (Barraclough, 1994; Holloway & Fuller, 1992; Shinn *et al.* (nd)).

The associations found indicating that children whose mothers were employed full time, and who were from sole-parent homes or from Asian families were accessing lower-quality ECSs than other children were for only one or two of the 4 subscales of the quality rating. While this does not give cause for grave concern, it suggests that effort should be directed to improving the quality of those ECSs which were chosen more often by these groups of parents. The data from this study do not clearly show a need to focus on one type of ECS only, but they do indicate the need to look more closely at improving the quality of full-day ECSs, which were more likely to be used by children from these families.

Summary

Our quality ratings incorporated the now substantial research evidence on the aspects of children's ECS experience which are found to enhance children's social and intellectual development. Consistent with this literature we found that the major structural factors related to process factors of ECS quality were ECE training, highest staff salary, children to staff ratios, and group size. Staff and child stability were less important than found overseas, perhaps because there was higher staff stability in our study ECSs.

ECS type emerges as a (possibly) distinctive New Zealand indicator of quality, because each type provides distinctive configurations of ECS structural ingredients.

On the basis of these ratings, we found that while children's access to an ECS of good quality was not decided by their parents' income, and while the variation of quality is not as wide as has been reported from the United States, differences in quality do exist. If we take the US study standard of a score of 70 percent as indicating good or adequate quality, then half the study ECSs were beneath this quality threshold.

Parents' perception of quality (or lack of it) were not consistently related to the ECS quality ratings on our instrument. While more work could be done to further parents' understanding of the ingredients and combinations that make for a good-quality ECS, the cumulative weight of research in this area gives a firm indication that children's access to good-quality ECSs should not be made dependent on parental choice.

Our analysis shows that government support for ECSs in New Zealand is likely to have been a major factor in the comparative evenness of children's access to good quality services, and in the lack of wide extremes of quality. The balance of quality factors in some ECS types could well be improved, however, with specific solutions needed for each ECS type.

Given the research which shows that it is not just access to ECSs which is beneficial for children, but their access to ECSs of *good quality* (e.g. Podmore, 1994; Wylie, 1994a), it would be unwise for government to promote any policy which results in—

- any decrease in the level of professional qualification expected of ECE staff,
- any decrease in regulations affecting teacher to child ratios or group size,
- any decrease in staff salaries, or

- making parental income or parental choice the deciding factors in government early childhood education policy—

since these will only result in deterioration of the quality of New Zealand ECSs, and of the benefits available to New Zealand children from their ECS experience.

CHAPTER 10

ASSOCIATIONS OF CHILDREN'S COMPETENCIES WITH HOME AND ECS RESOURCES

Associations and Their Significance

In this final section we bring together the study data on children's competencies and our data on home resources and ECS resources, including ECS quality, to see whether differences in these resources are reflected in differences in the levels of children's competencies.

Setting out the associations between children's competencies and the resources available to them in order of their significance is a useful way to see the comparative contribution of home and ECS resources. Some competencies have 12 associations with family and ECS resources: others, only 3.

In the following chart, bold type indicates a highly significant association (in this study, a probability of less than 1 in 10,000 that the association is due to chance), ordinary type a significant association (in this study, a probability of less than 1 in 1000 that the association is due to chance), and italic type, an indicative association (in this study, a probability of less than 5 in 100 that the association is due to chance).

Early Mathematics

1. **Home number activity**
2. **Partner's occupation**
3. **Family income**
4. **Home writing activity**
5. **Mother's occupation**
6. **ECS cost to family**
7. Proportion of income on housing
8. Mother's highest qualification
9. Computer ownership
10. ECS duration
11. *ECS starting age*
12. *Home reading*
13. *Ethnicity*

Early Literacy

1. **Home number activity**
2. **Computer ownership**
3. **Family income**
4. **Mother's highest qualification**
5. **Home reading**
6. **Home writing**

7=Mother's occupation
7=Partner's occupation
7=Ethnicity
10. English as the second language
11. ECS quality—interaction
12. ECS cost to family

Communication

1. **Ethnicity**
2. **English as the second language**
3. ECS quality—physical resources
4. Home number activity
5. Family income
6. Current ECS type
7. Amount of TV watching
8. Family type
9. *Computer ownership*
10. *ECS cost to family*
11. *ECS quality - programme*

Independence

1. Family income
2. *Ethnicity*
3. *Computer ownership*
4. *Partner's occupation*

Motor Skills

1. **Home writing activities**
2. ECS starting age
3. ECS duration
4. *Computer ownership*

Inquisitiveness

1. Gender
2. Partner's occupation
3. *Current ECS type*
4. *Mother's highest qualification*
5. *Home number activity*

Peer Social Skills

1. **Family income**
2. **ECS physical resources**
3. **Mother's occupation**
4. Partner's occupation
5. English as the second language
6. ECS quality—programme
7. ECS quality—interaction
8. *ECS cost to family*
9. *Mother's highest qualification*
10. *Amount of TV watching*

Social Skills with Adults

1. ECS cost to parents
2. ECS current type
3. Home number activity
4. English as the second language
5. *Ethnicity*
6. *Partner's occupation*
7. *Family income*
8. *ECS quality—physical resources*

Logical Reasoning

1. Home number activities
2. Home writing activities
3. *Computer ownership*
4. *Parent opportunity to talk to staff*

Perseverance

1. Gender
2. ECS quality—physical resources
3. ECS cost to parents
4. *ECS quality—programme*
5. *Mother's highest qualification*
6. *Home number activity*
7. *Mother's occupation*

ECS experience and quality have more associations than do family resources and activities with children's Peer Social Skills competencies, and their Motor Skills. They provide almost half the number of associations with children's Perseverance and Communication competencies. However, they provide a quarter or less of the associations with children's Logical Reasoning, Independence, Inquisitiveness, Early Literacy, or Early Mathematics.

These groupings show some correspondence with the loose factors identified in chapter 1, and some differences. Competencies showing more associations with home resources largely fall into the "Cognition" factor, which included Early Mathematics, Early Literacy, and Logical Reasoning—but also Motor Skills.

Competencies showing more or almost equal numbers of associations with ECS resources and experiences mostly came within the "Communication and Social Skills" factor—with the exception of the competencies of Independence and Social Skills with Adults.

These correspondences with the underlying factors begin to point to a hypothesis which needs further exploration: that ECS and home resources complement each other in the opportunities (or barriers) they provide for the development of children's competencies. ECS resources promote the development of "Communication and Social Skills"competencies, as well as Perseverance (including problem-solving) and Early Mathematics. Home resources play more of a role in the development of children's cognitive competencies. This may mean that if ECSs are to "compensate" for lack of home resources, which, as we have seen, are mainly associated with lack of income, then they will have to be of very high quality, with more emphasis on literacy activities than we observed in many of the study ECSs.

The Extent of Differences

How large were the differences found for those associations which were significant for children's competencies? Are they great enough to warrant attention or be of concern? The characteristics associated with several gaps, of more than 6 to 7 percentage points, are summarised below. Full figures are to be found in the analysis of each characteristic in the separate volume of Technical Appendices.

Home Resources

Family Income

Family income was frequently associated with the level of children's competencies. Children from the lowest-income homes were at least 7 percentage points behind their peers in the highest-income families for 7 of the 10 competencies, and 16 percentage points behind for Early Mathematics, 13 percentage points for Early Literacy, and 12 percentage points for Peer Social Skills. These gaps are occurring at the start of children's school careers, and they are wide enough to cause concern.

Housing

Children from families spending half or more of their income on housing were scoring 12 percentage points behind those whose families spent a quarter or less of their income on housing.

Mother's Highest Qualification

The associations between competencies and mother's highest qualification followed a similar pattern as family income, with the exception of a much narrower gap for Peer Social Skills (6 percentage points), and gaps of 9 percentage points for inquisitiveness between those with no school qualification and those with a mid-school qualification.

Mother's Occupation

The associations between children's competencies and mother's occupation show a similar but not identical pattern to mother's highest qualification: children whose mothers were in professional jobs before the birth of their first child were 18 percentage points ahead of those whose mothers had been in unskilled work in Early Mathematics, 14 percentage points ahead in Early Literacy, and 11 percentage points ahead in Peer Social Skills competency.

Partner's Occupation

The partner's occupation before the first child's birth gives an almost identical pattern as mother's occupation. Children whose fathers had been in professional work scored 21 percentage points ahead of those whose fathers had been in unskilled work at the time of their first child's birth, the highest, for Early Mathematics, 10 percentage points ahead for Inquisitiveness, and 9 percentage points ahead for Social Skills with Adults.

Ethnicity

Pacific Island children were 14 percentage points behind Pakeha/European for Early Literacy and Communication (14 percentage points each), and 10 percentage points behind in Inquisitiveness. Maori children were 10 percentage points behind Pakeha/European for Early Literacy, 13 percentage points in Early Mathematics, and 7 percentage points in Inquisitiveness.

English as the Second Language

Children whose first language was not English were behind their peers whose first language was English by 13 percentage points for Peer Social Skills, 15 percentage points for Social Skills with Adults, 16 percentage points for Communication, and 17 percentage points for Early Literacy—but no difference for Early Mathematics. Most of these children were attending A'oga Amata, and had teachers who spoke their home language, and shared their home culture. Thus the measurements were usually made by adults who shared the child's first language.

Family Type

Family type showed one significant association, with Communication (children from sole-parent families were 8 percentage points behind children from 2-parent families), and 2 indicative associations of 0.04 for Perseverance (children from sole parents scored 9 percentage points behind children from 2-parent families) and 0.04 for Peer Social Skills (children from sole-parent families scored 7 points fewer than their 2-parent-family peers).

In this case, the result is not quite as clear cut as it seems, since children from sole-parent families living in extended-family households scored slightly more than their 2-parent peers for Communication, 7 percentage points more for Perseverance, and 6 percentage points more for Peer Social Skills.

Home Numerical, Reading and Writing Activities

Numerical Activities

The significant associations between home numerical activities (children who did more than the 8 specific number activities asked about) and half the competencies translate into sizable gaps for Early Mathematics (11 percentage points), Early Literacy (10 percentage points), and Logical Reasoning (9 percentage points). The sorts of activities which were mentioned by parents were puzzles, board games, using the telephone, reading out numbers from letterboxes or signs, counting money, recognising patterns, writing numbers, asking questions about such things as the number of days in a week, questions about people's ages, or time durations, and, for a few, adding, subtracting, or multiplying.

Reading Activities

Children whose family read to them at least once a day scored 8 percentage points more on the Early Literacy measure than children who had less regular experiences of adults or older children reading to them. There was also an indicative association with scores on the Early Mathematics measure, with children who were read to at least once a day at home scoring 7 percentage points more than others.

Because there were more associations between competencies and mathematical activities at home than with the frequency of children being read to at home, we also looked at the comparable question for reading—whether children were doing more reading activities at home than the 5 we asked about. There were no associations found with different levels of children's competencies. We then delved further, looking at the specific items we asked about—playing at reading, memorising favourite stories, asking for favourite books to be read, looking at books alone and knowing that certain sounds go with certain letters. Knowing that certain sounds go with certain letters was significantly associated with children's Early Literacy (giving a 9-percentage-point advantage), Early Mathematics (giving a 9-percentage-point advantage also), and Logical Reasoning (a 10-percentage-point advantage). It was also indicatively associated with Communication, giving a 5-percentage-point advantage). The association with Communication vanished when family income and mother's highest education qualification were fitted first into the model, which means that the higher score was related more to those factors than to the child's knowledge that certain sounds go with certain letters. However, the other associations remained, giving a 10-percentage-point advantage in the lowest family-income bracket to those children who had this knowledge over their peers in the same income bracket.

Children who played at reading books had a higher score on Independence, of 5 percentage points, but a lower score on Inquisitiveness (of 9 percentage points). Both these associations occurred at the indicative level of 0.04 and 0.01 respectively. Both of these associations remained after controlling for family income, and for mother's educational qualification.

Writing Activities

We also looked at whether children who were doing more than the 5 writing activities we specifically asked about showed different levels of competencies. Such extra activities included writing letters of the alphabet, playing games involving writing (real or "pretend"), pretend writing or scribbling, using a computer or typewriter, making books, or copying material other than names. There were 4 significant associations here. Children who did these "extra" home writing activities scored on average 10 percentage points more on the Early Mathematics competency measure **($p = 0.00006$)**, 8.6 percentage points higher on the Logical Reasoning measure **($p = 0.003$)**, 7.3 percentage points higher on the Early Literacy measure **($p = 0.006$)**, and 4.7 percentage points higher on the Motor Skills measure.

It is interesting that these numerical, writing, and reading activities at home show advantages in both literacy and numeracy, and that Logical Reasoning, which has shown few associations with family resources, should be correlated with numerical and writing activities, but not reading activities.

Computers and Television

Computers

Children from homes with a computer scored higher than those from homes without a computer on 2 of the 10 competencies. The differences were 9 percentage points in Early Literacy, and 7 percentage points in Early Mathematics. The differences which put children from homes with computers ahead of other children were indicative for 4 other competencies: Logical Reasoning (6 percentage points), Communication (4 percentage points, Motor Skills (4 percentage points), and Independence (3 percentage points).

Television

Children who watched more than 4 hours of television a day scored around 10 percentage points fewer for Early Mathematics than those who watched less television, or none at all. This was the only association found between children's competencies and the amount of television they watched. The lack of difference between those who watch some television and those who watch none is interesting in the light of some of the cautions which have been expressed about children's television watching. Perhaps it should be noted here that our measure was of quantity, not "quality".

Gender and Health

Gender

Significant associations were found between gender and 2 of the competencies. Girls were 7 percentage points ahead of boys on the Perseverance measure, and boys were 6 points ahead of girls on the Inquisitiveness measure. There was also an indicative association of 0.047 with Early Literacy, with girls 6 points ahead of boys.

Health

Our first exploration of the associations between children's health and their competencies used parental assessment of their overall health status. Only one indicative association was found, of 0.056: children whose health was described as excellent or very good were 3 percentage points ahead of those with lesser health on the Peer Social Skills measure. Breaking the categories down further into 3 (excellent/very good; good; and fair/poor) and carrying out a regression analysis showed a weak linear association. Children whose health was described as fair/poor were 9 percentage points behind those with excellent/very good health on this measure, and 3 percentage points behind those with good health. We then used parental information on whether a child was seeing a specialist or therapist: no associations were found with competencies.

Hearing

Our final exploration in relation to children's health was of children's hearing. Parents had told us if their child had had a hearing test (no associations were found for this variable); and we used the 272 children in our sample who had had a hearing test to see if there were any associations between competencies and children's hearing "status", categorised as no hearing problems; a hearing problem which had been corrected; and an ongoing hearing problem. A significant association was found with Peer Social Skills. Children with an ongoing hearing problem were 9 percentage points behind others on this measure; there was no difference, however, between those who had had no problem detected with their hearing, and those who had had a problem corrected. This may simply mean that the problems that had been corrected were minor or more treatable than those which continued. Indicative associations (of 0.04 each) were found with Early Literacy, with those with hearing problems 10 percentage points behind those with no hearing problems, and 7 points behind those with a corrected hearing problem; and with Logical Reasoning, where children with continuing hearing problems were 11 percentage points behind those with no hearing problems, and 5.5 percentage points behind those with a corrected hearing problem.

ECS Resources

While differences in ECS resources are associated with quite a few differences in children's competency levels, the differences are smaller than for the associations with home resources. The research on school effectiveness also shows that differences between schools contribute less to differences between children than do the differences in their home resources.[25] This is not surprising, considering the simple fact that children spend less time in ECSs (or schools) over all than in their home environment.

The ECS resources which we found to be most significant in relation to children's competencies were the quality of the current ECS and the child's length of ECS experience. Some differences between ECS types were also significant, as was the cost of the current ECS to parents.

Associations with ECS Quality

Physical Resources Subscale

Children attending ECSs scoring highly on the Physical Resources subscale were ahead of their peers in low-scoring ECSs, with significant differences of 7 percentage points each for Perseverance and Communication, and 9 percentage points for Peer Social Skills, and an indicative (p = 0.03) difference of 6 percentage points for Social Skills with Adults.

After removing the effect of ECS type, a further significant association (p = 0.005) was found between this subscale and the Inquisitiveness measure. But this difference showed variations according to the ECS type. In kindergartens and private preschools, the differences that emerged were between centres scoring less than 22 on the 25-point subscale, and above that, whereas at playcentres and childcare centres, differences were apparent between those scoring less than 19 and those scoring 19–22 as well. There were no differences between individual Family Day Care and A'oga Amata, whatever their score on the subscale.

The biggest difference within type was found among private preschools. Children at the highest scoring private preschools were 25 points ahead of their peers in mid- and low-scoring private preschools.

Children at high-scoring kindergartens were 7 percentage points ahead of children in other kindergartens. Children at high-scoring playcentres were 4 percentage points ahead of their peers at mid-scoring playcentres, but 12.5 ahead of the low-scoring playcentres. There were no high-scoring childcare centres on the Physical Resources subscale. Children in mid-scoring childcare centres were 5 percentage points ahead of their peers in low-scoring childcare centres.

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[25] Reynolds *et al.* (1994), p. 20.

Programme/Activity Subscale

The Programme/Activity subscale showed a significant association with Peer Social Skills, and indicative associations (of 0.01) with Perseverance, and (of 0.04) with Communication.

Children in ECSs with a high score on this subscale (above 19 out of 25) scored 6.5 percentage points ahead of children in ECSs with scores lower than 19 for Peer Social Skills. There was no difference in scores for Peer Social Skills between those attending ECSs with a mid score and a low score for the Staff-child Interaction subscale.

There were more progressive differences visible for the Perseverance and Communication subscales. Children at the highest-scoring ECSs were 3 percentage points ahead of their peers at mid-scoring ECSs for Perseverance, and 7 points ahead of those at ECSs with low scores on the Staff-child Interaction subscale. They were also 3 points ahead of their peers in mid-scoring ECSs for Communication, and 5 points ahead of those attending ECSs with low scores.

Staff-child Interaction Subscale

The Staff-child Interaction subscale showed significant associations with 2 competencies. Children attending ECSs with scores of 19 or more out of 25 on this subscale were 2 percentage points on the Peer Social Skills measure ahead of their peers attending mid-scoring ECSs, and 7 percentage points ahead of those attending low-scoring ECSs.

The association with the Early Literacy subscale is curvilinear over all: children at high-scoring ECSs were 7.5 percentage points ahead of their peers in mid-scoring ECSs—yet only 3 percentage points ahead of those attending low-scoring ECS.

Self-esteem Subscale

There were no associations between the Self-esteem subscale and children's competencies.

ECS Attendance

The total number of ECSs attended by a child, and whether in sequence or concurrently, through packaging, does not seem to have any impact on children's competencies as they reach the age of 5. That is, children who changed ECSs a number of times did not have any lower, or higher, levels of competencies than their peers who had attended only one ECS. Children who attend 2 ECSs at one time are not put at a disadvantage in relation to their peers attending only one ECS. These findings probably come as a relief to parents who have worried that their need to change arrangements or devise their own combination was having a negative impact on their child.

The competencies that did show a significant association with the length of a child's total ECS experience are Motor Skills and Early Mathematics. Children who started their ECS experience when they were less than 2 years old were 4 percentage points ahead of those who started in their third year, and 7 percentage points ahead of those who first went to an ECS in their fourth or fifth years.

Children who went to their first ECS before they were a year old had competency levels as high as others. To put this another way, there is no evidence in this study that early attendance at an ECS has negative effects for children.

The total length of a child's ECS experience gives us another, overlapping perspective on the cumulative effects of ECS experience, although nothing is known about the quality of the ECSs other than the child's final ECS, and without distinguishing between sessional and full-day ECS (or counting duration by hours of experience rather than months of attendance).

Again, there was a significant association with Motor Skills. Children whose ECS attendance was 48 months or more were 2 percentage points ahead on the Motor Skills measure of children with 34–47 months' ECS attendance, 5 percentage points ahead of those with 24–35 months' ECS experience, and 7 percentage points ahead of those with less than 24 months' ECS attendance.

There had been a marginal association between children's starting age at an ECS, and their Early Mathematics. This association was significant for the total length of their ECS experience. Children who had attended an ECS for 48 months or more were 6 percentage points ahead on Early Mathematics of their peers who had attended an ECS for 36–47 months in total, 9 percentage points ahead of the children whose attendance was 24–35 months, and 11 percentage points ahead of those who had attended for fewer than 24 months.

Thus ECS experience does seem to enhance children's competencies in Early Mathematics and Motor Skills, with marked differences between those with 3–5 years of ECS experience, and those with 2 years or fewer.

Parent Experience of ECS

We found no associations between children's competency levels and:

- parental satisfaction with the ECS staff communication about their child's experience in the ECS,
- parental perception that their child's ECS attendance had had some negative effects, and
- the level of parental involvement in their child's current ECS.

Parental satisfaction, comfort, and involvement with their child's ECS are important in their own right, but they do not appear to make a substantial difference to the level of children's competencies.

The cost paid by parents for their child's current ECS did show significant associations with 4 competencies, and indicative associations with 2 more. The associations were not linear. Indeed the lowest cost options for parents were associated with higher scores for the competencies of Adult Social Skills, Perseverance, Social Skills with Peers, and Communication, indicating that the cost was perhaps related to ECS type rather than quality.

We then included the child's current ECS type before modelling for the effects of the cost of the ECS to parents. Early Mathematics and Early Literacy remained significantly associated with the cost paid by parents for their child's current ECS; indicative associations remained for Social Skills with Peers ($p = 0.02$), for Social Skills with Adults ($p = 0.036$), for Perseverance ($p = 0.4$), and emerged for Logical Reasoning ($p = 0.01$). The association with Communication ceased to be indicative.

The next table shows how difficult it is to try to use ECS cost to parents as a guide to the impact it might have on the development of children's competencies.

Table 56

Significant Differences Amongst the 5 Levels of Cost Per Week for the ECS After Fitting ECS Type

Competency	Significant differences for cost per week in 2-factor model					Probability F-value from anova
Perseverance *(separation is indicative only)*	>$80	$7–<40	$4–<7	$40–80	$0–<4	0.040
Social Skills with Peers *	>$80	$7–<40	$4–<7	$40–80	$0–<4	0.019
Social Skills with Adults	$7–<40	>$80	$4–<7	$0–<4	$40–80	0.036
Early Mathematics	>$80	$40–80	$4–<7	$7–<40	$0–<4	0
Early Literacy *	>$80	$40–80	$4–<7	$7–<40	$0–<4	0.0001
Logical Reasoning	$4–<7	>$80	$40–80	$7–<40	$0–<4	0.01

The cost to parents of an ECS reflects the number of hours a child attends each week, as well as the government contribution. It also reflects parents' ability to pay, particularly where fees are voluntary (playcentre and kindergarten) or for the ECS which fit the criteria for government subsidies for low-income families (childcare and Family Day Care). Our sample numbers are too small to allow us to carry out a statistical analysis which includes hours of ECS attendance each week, ECS type, and ECS cost to parents, which would be the only way to determine properly what the link is between what parents are paying for their child's ECS, and the child's competency level.

Associations with Children's Interactions and Activities at Their Current ECS

We also looked to see whether there were any associations between the level of children's competencies, and their interactions and activities as observed at their current ECS. We did not anticipate any large associations of high significance, since we had only 15 one-minute-long observations of each child, over a limited period of usually 3 to 4 weeks. But we thought that any associations or trends which were found might help to enlarge our understanding of how early childhood education experience works for children, and why it seemed to promote some competencies more than others. The observational data were not suitable for directly modelling against the children's competencies.

We therefore tallied the number of times a given child was observed in a given interaction or activity and converted that to the percentage of his or her observations to give us a single figure we could use to model linear regressions against the level of a given competency for the same child.

The regression analysis showed whether or not the competency data formed a different pattern in some way across the range of the interaction or activity. Where it did, the pattern was used as a guide to group the data to enable estimation of any differences. If no particular pattern was seen, the grouping was usually done at the upper or lower quartile (and sometimes both) to allow estimation of the largest differences occurring.

The following associations between the frequency of a given interaction and activity and children's competency levels were found. Children's activity levels varied considerably, as did their competencies, and this led to generally low correlations between competencies and activities, even though some regression associations were significantly different from zero (indicating no association). The regression associations found can be interpreted as showing a tendency for the competency either to increase or decrease as the percentage of times observed in the activity increases.

The amount of any observed difference is provided by the modelling part of the analysis. If a significant difference was not found when there was a regression effect, this means the data were too variable to be able to identify separate groups. Significant differences between groups ranged from 4.6 to 12.7 percentage points on the competency scores. The associations found fit in with our analysis of the relations between early childhood education quality and duration, and our factor analysis of the relations between the competencies themselves.

Significant associations are noted in bold, and indicative associations in italics. It is likely that the indicative associations would have reached significance with a larger sample. The probability quoted refers to the probability of the overall effect through an anova analysis.

Communication

We have shown the association between a child's current ECS quality on the Physical Resources and Programme/Activity subscale ratings and the level of that child's communication competency. The level of children's interaction with others also made a difference to their measure on our communication score:

- Children who engaged in parallel play for more than 60 percent of their observations were likely to score 7.5 percentage points more on the Communication competency than others **(p = 0.0003)**.
- Our social skills observations followed an ascending order from the least to the most complex levels. We weighted each level observed for a child (from 0 to no interaction, through 1 for parallel play up to 4 for pretend play). Using this weighted measure of Interaction with Other Children, we found that Communication scores rose gently from 72.5 for the lowest quartile, through to 76.8 for the second quartile, with the scores for the top 2 quartiles much the same at 79.7 for the third quartile, and 78.6 for the top quartile **(p = 0.004)**.

Thus there are 2 thresholds: high levels of interaction with other children give much the same score as medium levels, but both are associated with higher scores on Communication than is a low level of interaction.

- Children who engaged in pretend play for at least one of their observations scored on average 5.9 percentage points more than those who were not observed in pretend play **(p = 0.009)**. There were no differences between different amounts of pretend play above this threshold—the scores were the same whether children spent less than 10 percent, 10–19 percent, or 20 percent or more of their observations in pretend play.
- Children who played in groups of 2 to 5 children for more than 60 percent of their observations scored on average 5 percentage points than others *(p = 0.031)*.
- An association which emerged in the linear regression analysis, but not in the secondary analysis, as significant was with the frequency of the child being observed alone (p = 0.006, r = 0.16), with the Communication score decreasing slightly as the proportion of times a child played alone in our observations increased.

Over all, interaction with other children in the ECS setting appears to be beneficial for the development of children's communication skills. The frequency of interaction, however, need not be more than medium for a positive association to be seen.

Independence

- The weighted Interaction with Other Children score also showed associations with children's scores on our Independence measure. Here children in the lowest quartile scored on average 7.6 points less than others. There were no differences between the top 3 quartiles, indicating that low to medium amounts of interaction with other children would be as beneficial as high amounts **(p = 0.001)**.
- Children who did not engage in Pretend Play during any of their observations scored on average 7.2 percentage points behind those who did. However, there were no significant differences between different amounts of pretend play **(p = 0.004)**.
- Children in the upper quartile of the proportion of observations in which they were engaged in reciprocal play with other children scored on average 4.6 percentage points above others **(p = 0.007)**.
- An indicative association *(0.034)* was found between children spending more than 40 percent of the observations in one to one interaction with an adult, and children spending less, giving the latter 3.7 more percentage points on average.

As with communication, children's independence appears to benefit from the interaction with other children which ECS make possible. The associations also follow much the same pattern, with the exception that reciprocal play shows an association with Independence, but not Communication.

Social Skills with Peers

We had expected there to be some associations between children's overall interaction with others, and their score on our measure of their social skills with peers. Only one association was found—this was with the third highest level of our Interaction with children scale, not the highest.

- Reciprocal play: children who spent more than 7 percent of their observations engaged in reciprocal play were likely to score 5.4 percentage points more **(p = 0.006)**.

- Aggression: children who showed aggression on more than 10 percent of their observations scored on average 10.7 percentage points less than others **(p = 0.001)**.

  There were no differences between children who showed no aggression in our observations, and children who showed aggression only once.

Social Skills with Adults

What is of great interest here is that it is children's interaction and play with others which is associated with differences in their scores for our measure of their Social Skills with Adults—and not their interaction with adults at the ECS, or their conversations with adults.

- Children who spent more than 60 percent of their observations in groups of 2–5 children scored on average 8.2 percentage points more than others **(p = 0.002)**.
- Children who spent more than 60 percent of their observations in parallel play with other children scored on average 6.1 percentage points less than others *(p = 0.012)*.
- Children who spent more than 7 percent of their observations in reciprocal play with other children scored on average 5.2 percentage points more than others *(p = 0.016)*.
- There was an indicative association between the proportion of observations where children were interacting with other children, and their social skills with adults *(p = 0.012; r = 0.14)*, with the score for the latter rising gently as the proportion of interaction with other children rose.

Motor Skills

- Children who spent more a 20 percent of their observations with an adult at a distance, rather than close by, scored on average 10.3 percentage points more than others **(p = 0.001)**.
- Children who spent more than 60 percent of their observations in interaction with other children scored 6.3 percentage points more than others *(p = 0.04)*.

Inquisitiveness

This was also associated with proportion of observations without an adult close by, and with the proportion of interactions with children—but with the kind of interaction rather than the mere fact of it. All the associations found here were indicative rather than significant. They are, however, the first of our ECS variables to show any association with the Inquisitiveness measure.

- Children who had an adult at a distance for more than 20 percent of their observations scored 8.6 percentage points more than others *(p = 0.012)*.
- Children who engaged in parallel play for more than 60 percent of their observations scored 6.5 percentage points more than others *(p = 0.014)*.
- Children who engaged in simple play for more than 60 percent of their observations also scored more than others, 5.1 percentage points *(p = 0.016)*.

Perseverance

There *is* an association here between the competency measure and children's interaction with adults, though it does not advantage those who spent more time than others in intense interaction with adults.

- Children who spent more than 44 percent of their observations in intense one to one interaction with adults scored 5.2 percentage points less than others *(p = 0.015)*.
- Children who spent more than 60 percent of their observations in groups of 2 to 5 children scored on average 7.4 percentage points more than others **(p = 0.005)**.

Early Mathematics

We had found this to be associated with children's overall duration of ECS experience, but not with the child's current ECS experience. The observational material does yield some interesting associations which point to why the cumulative experience of ECS may have an impact on early mathematics: the opportunity for children to engage in exploration with materials and equipment which might not be available in their own homes. Note that the close presence of an adult is not necessary for children's mathematical knowledge to increase. The adults are important in their selection of activities which encourage exploration, and in setting them out in a manner which gives children free rein.

- Children who spent more than 20 percent of their observations with an adult at a distance scored 13.4 percentage points more than others **(p = 0.001)**.
- Children who spent more than 13 percent of their observations engaged in exploration scored 6.8 percentage points on average more than others **(p = 0.009)**.

Early Literacy

The only association found here previously was a curvilinear one. Children at the ECSs scoring highest on the Staff-child Interaction subscale scored more on our Early Literacy measure than others, but children currently attending low-scoring ECSs were slightly ahead of those in mid-scoring ECSs. The association found here supports the picture for higher-rating centres on the Staff-child Interaction score, but does not really help explain the curvilinearity of the result.

- Children who spent more than 40 percent of their observations with 1 adult close by scored on average 6.9 percentage points more than others **(p = 0.001)**.
- A marginal association was found for children who had some cognitive language extension for more than 23 percent of their observations: they scored 4.3 percentage points on average more than others *(p=0.07)*.

Logical Reasoning

Five indicative associations were found between the children's interactions and activities, and their score on the Logical Reasoning competency measure. Since very few associations were found for this measure on our other analyses, these associations are of interest. Here interactions with adults count, as do exploration: children's interaction with other children is not associated, except with one negative exception.

- Children who spent more than 13 percent of their observations in exploration scored 7.4 percentage points more than others on average *(p = 0.013)*.
- Children who had some cognitive language extension on more than 23 percent of their observations were on average 5.9 percentage points ahead of others *(p = 0.024)*.
- Children who were observed to be interacting one to one with adults who had a negative tone to their actions for more than 10 percent of their observations were 12.7 percentage points behind others *(p = 0.024)*.
- Children who had some one to one interaction with an adult for more than 40 percent of their observations scored 6.7 percentage points better than others *(p = 0.043)*.
- Children who engaged in reciprocal play for more than 7 percent of their observations were on average 6.3 percentage points behind others *(p = 0.052)*.

The Weight of Family Income and Mother's Education

When one takes into account family income and mother's education, which showed consistent and often sizable associations with the children's competency levels, what remains of the associations between home resources, ECS resources, and children's competencies? Or, in other words, how much of the difference in levels of competencies is attributable to family income and mother's education, and how much to the characteristic in question itself?

In this part of the analysis we concentrate on aspects where the differences were large, unexpected, or sensitive: family type, ethnicity, gender, current ECS type, length of ECS experience, computer ownership, home numerical activity, home writing activity, and home reading activity.

Family Type

After fitting family income and mother's education, only one competency remained associated with the child's family type, and that indicatively—Social Skills with Peers ($p = 0.017$).

Comparing the competencies of children from 2-parent and 1-parent families within the same household income bracket can only be done within the 2 lowest income brackets, since only 5 sole-parent families earned more than this.

The results disturb some of the prevailing stereotypes of sole-parent families. Children from sole-parent households in households with incomes of less than $20,000 whose mother had no formal qualification were on average 18 percentage points ahead of their peers in 2-parent families in the same income bracket.

However, where the mother's highest education was School Certificate or University Entrance, children from 2-parent families in the lowest income bracket scored on average 5.3 percentage points more than children from sole parents for our measure of their Social Skills with peers, and 8.3 percentage points more in the next income bracket.

Children from sole-parent families in the lowest income bracket whose mother had no education were also scoring much higher on this measure than their peers from higher income brackets, whose mothers had less than a tertiary qualification.

We have no ready explanation for the difference related to income and mother's education that we found for this particular competency. It may indicate that their access to good-quality early childhood education through kindergarten and playcentre is particularly beneficial. It may indicate that —again contrary to stereotypes—sole parents in this income bracket are particularly resourceful, and that formal qualification is not the only indication of such personal strengths and skills.

It is probably necessary to reiterate in this context the absence of any of the associations between family type and children's competency levels which the popular stereotypes of sole families would assume. Family income certainly counts, but not family type.

Ethnicity

In fitting first the child's mother's highest qualification to the Social Skills with Peers measure, we found an indicative association ($p = 0.02$). The child's family income was fitted after that, and showed a significant association **($p = 0.0008$)**. Finally, we fitted the child's ethnicity—and found no association remaining. This means that it is the differences in family income which underlie the differences in ethnicity, and which accounted for the differences in the competency levels which we originally saw.

Following the same process, a similar pattern was found for the association with Early Mathematics, but with a greater association between mother's highest qualification **(p = 0.006)**. The association with family income was significant **(p = 0.005)**. No association remained with Ethnicity. Differences in family income and mother's highest qualification therefore account more for the differences formerly observed in children's levels on our Early Mathematics measure.

Mother's highest educational qualification showed the greatest association with children's score on our Early Literacy measure **(p = 0.0008)**. Fitting family income next showed only an indicative association; in other words, for this measure, mother's highest educational qualification was the characteristic which had most weight. Finally, fitting children's ethnicity did show an indicative association, separate from mother's highest qualification and family income *(p = 0.025)*. Maori children were scoring on average 7 points less than Pakeha children, and 12 points less than Asian children. Pacific Island children were scoring on average around 11 percentage points less than Pakeha children and 15.5 points less than Asian children in the study.

The Communication measure showed a different pattern in this closer examination of its associations with ethnicity. Mother's highest qualification was not significant here: family income was indicative *(p = 0.05)*, and ethnicity was significantly associated **(p = 0.006)**. Pacific Island children were scoring, on average, 9.1 percentage points less than Maori and Asian children, and 14.3 percentage points less than Pakeha/European children on the Communication score.

However, *none* of these differences related to ethnicity remained once we had fitted the child's first language into the model, after mother's highest qualification and family income. Thus, like family type, ethnicity fades into insignificance in the light of these resources available to children.

After fitting family income, 2 of the 3 associations relating to Mother's Occupation remained, but at an indicative rather than significant level: Social Skills with Peers *(p = 0.035)*, and Early Mathematics *(p = 0.018)*. Perseverance was no longer associated.

A similar overlap between family income and Partner's Occupation was shown: associations which were significant in a 1-factor modelling became indicative for Inquisitiveness *(p = 0.017)*, Social Skills with Peers *(p = 0.035)*, and Early Mathematics *(p = 0.018)*. Early Literacy was no longer associated with Partner's Occupation.

It would seem, then, that differences in parental occupations and family income are accounting for much the same amount of difference in some of the children's competencies. They are not reducible to one another, however, and they were additive, which means that within the same family income bracket, children whose fathers had unskilled work tended to have lower mean scores on the competencies mentioned above than those whose fathers were in skilled or professional work.

Gender

Gender remains important after fitting family income and mother's highest qualification for the level of children's Inquisitiveness (boys were 6.4 percentage points ahead of girls) and Perseverance (girls were 7 percentage points ahead of boys).

Home Numerical Activity

After fitting first mother's highest qualification **(p = 0.005)**, and then family income **(p = 0.002)**, children who did more than the 8 numerical activities we asked specifically about were still significantly likely **(p = 0.002)** to score higher on our Early Mathematics competency measure than those who did not, a percentage point difference of 7.8.

Mother's highest qualification proved also to have a significant level of association with children's score on our measure of Early Literacy **(p = 0.0007)**. Family income became only indicatively associated *(p = 0.029)*. However, after taking mother's education and family income into account, children who did more than the 8 specific mathematics activities we asked about were still scoring 7 percentage points higher on average than others **(p = 0.0008)**.

Home Reading

Unlike the children doing more home numerical activity, those children who were read to at least once a day and those who were not scored much the same once their mother's education and family income had been taken into account. The one item which continued to show a difference was whether children knew that certain sounds were associated with certain letters.

Home Writing

After taking family income into account, children who did more than the 5 writing activities we asked specifically about continued to have a significantly higher average score on the competencies of Early Mathematics and Early Literacy, and indicatively higher average score on our Logical Reasoning and Motor Skills measures.

Family Computer Ownership

Children's score on the Motor Skills competency continued to have an indicative association with whether their family owned a computer *(p = 0.034)*, after fitting into the model mother's highest qualification *(p = 0.036)*, and the family income (no significance). Thus we can conclude that family computer ownership is likely to make a positive difference to children's motor skills.

The association between family owership of a computer and children's scores on our early Literacy measure remained significant **(p = 0.004)**, after fitting mother's highest qualification **(p = 0.0008)**, and family income *(p = 0.03)*. Again, and more emphatically than for motor skills, we can conclude that having a computer in the family is beneficial for children's early literacy. However, its effect is much more pronounced for children who come from low-income families, and/or whose mother's highest qualification is at the mid or senior school level; the percentage point differences were 15 and 16 for the latter 2 groups, and for the lowest income group, 25 percentage points ahead of children from families in the same income bracket without a computer.

Length of ECS Experience

This remains associated *(p = 0.011)* with children's level of competency on our Motor Skills measure after taking into account family income (which showed no association) and mother's highest qualification *(p = 0.03)*. Higher levels related to more than 3 years' ECS experience. The difference between children who had attended ECS for less than 2 years in total and those who had attended for more than 4 years was 6.8 percentage points.

Quality of Current ECS Attended

After controlling for family income, the quality of a child's current ECS remained associated with most of the children's competency levels it was associated with on the 1-factor modelling, indicating that ECS quality has an independent, additive association. In general, this means that high-quality ECSs appear to enable children from low-income homes to increase their competency levels on the social skills, communication, and perseverance scores to about the same average as their peers who come from better resourced homes in terms of income, and who attend ECSs of average quality. High-quality ECSs are not, however, able to make up for the income differences, and ensure that children the lowest-income homes are achieving at the same level as those from high-income homes, on average.

It also means that children from high-income homes in lower-quality ECSs have lower scores on these competency measures than children from the same well-resourced homes attending better quality ECSs.

The *Staff-child Interaction* subscale remained associated with the competency measure of Social Skills with Peers *($p = 0.036$)*. Children from the lowest-income homes in the highest quartile on this ECS quality subscale were scoring on average 8 percentage points ahead of children from the same income bracket attending ECSs rating less on this subscale. A similar trend but with a different pattern showed for children from the highest income bracket—an average difference of about 15 percentage points between the lowest quartile on the quality rating, and all ECSs rating more highly.

With Early Literacy, the curvilinear relationship between children's levels of competency and their current ECS's rating was retained *($p = 0.01$)* for children in the lowest and second-highest income brackets. Children in the highest income bracket in the top quartile of ECS quality on this subscale were likely to score on average 7.4 percentage points more than others with the same family income.

However, children from families with incomes between $20,000 and $30,000 showed declining scores as the quality of their current ECS increased on this subscale—a pattern which in fact repeated itself for the other associations between ECS quality and children's competencies, indicating either that the children in this group in our sample were by chance an unusual range of children, or that the interaction between home resources and ECS is following a different pattern for which we have, at present, no explanation.

The *Programme/Activity* subscale retained its associations with the measure of Social Skills with Peers **($p = 0.006$)**, with Perseverance *($p = 0.01$)*, and with Communication *($p = 0.04$)*.

The *Physical Environment* subscale also retained its associations with the measures of Social Skills with Peers **($p = 0.0001$)**, with Communication **($p = 0.002$)**, Perseverance **($p = 0.005$)**, and Social Skills with Adults *($p = 0.043$)*.

Type of Current ECS Attended

This variable had shown some indicative associations with Inquisitiveness and Social Skills with Adults. These associations remained at an indicative level, after fitting mother's highest qualification and family income. Family income did not show any significant associations in this process, and mother's highest qualification was at the indicative level only.

The association between a child's score on our Inquisitiveness measure and the child's current early childhood education service type was $p = 0.025$. Children attending kindergarten scored on average 10 points less than children attending childcare or private preschools.

The association between a child's score on our measure of their Social Skills with Adults and the current ECS type attended showed in the higher scores of children attending kindergarten compared with children attending A'oga Amata, an average difference of 9 percentage points, and between children attending kindergarten, who scored on average 5.4 more percentage points than their peers in playcentres. Children attending childcare also tended to score higher than children attending A'oga Amata on this measure of Social Skills with Adults, an average difference of 8 percentage points.

However, after including whether or not a child's first language was English, the associations between a child's score on the Social Skills with Adults measure and the child's current ECS type disappeared. The association with Inquisitiveness, however, remained—with children attending kindergarten, and whose first language was not English, doing less well than their peers in A'oga Amata, a difference of 26.4 percentage points. This difference may simply reflect the small number of children in this category in our sample attending kindergarten (3).

Summary

Our analysis of the statistical associations between children's competencies and their family resources, shows that family income, and parental education and occupations, are key aspects of children's competency levels. Indeed, differences in the distribution of family income which overlap with differences in ethnicity and family type are the real reason for apparent differences related to those 2 aspects of family life. This is an important finding. It provides some foundation for the argument that increasing the level of family income available to those at the bottom end would be one of the most effective ways of improving children's achievement in those families.

The association between computer ownership and children's competency levels in the cognitive areas could also point to the desirability of making sure every home had a computer. Many of the low-income families in this study did not, however, have computers. This inequality in resources could mean the gaps in children's competency levels related to family income are only increased.

We were surprised not to find more associations between our measures of home reading activity and children's scores on our Early Literacy measure. Perhaps our gauge of home reading activity was too crude.

By contrast, the strong association of home number activity and home writing activity with a number of cognitive and communication competencies indicates an area which could be given more prominence if we wish to extend children's knowledge and skills.

Children's competency levels in communication, social skills, and perseverance were clearly associated with the quality of their current ECS, and their motor skills and early mathematics with the duration of their ECS experience. We gained some insight as to why this might be so by looking at the relationships between children's actual activities in their current ECS, and their competency levels. This exploration brought out the multidimensionality of ECS life, and the value of its variety as far as children's competency levels are concerned. There are different benefits to be gained from working alone, from working one to one with an adult, from working in small groups of other children; from "everyday" activity, as many adults experience in their own working days, and the shorter bursts of more demanding engagement with other children, with adults, or with the material activities made available by the ECS.

CHAPTER 11

CONCLUSION

Competencies and Influences

At near the age of 5, the majority of children in this study were confident in their communication with others, could look after their own dressing and toileting, and solve problems in their exploration, games, and construction activities. Most were familiar with books, and knew how they should be read, even if they were yet to start reading themselves. Around half could recognise the letters of their own name, and write their first name. Most children were familiar with numbers up to 10, whether in the form of counting or recognising numerals. Just under half could recognise different shapes.

Only a few of our tasks stumped most children. Accurate tracing and scissor use were beyond the competency of all but a few of the children. Recognising and laying out a sequence of different shapes was also difficult, but almost 40 percent of the children managed this task.

Where there were differences in the level of children's competencies, the data and analysis in this study point to differences in family resources—mainly income and mother's education—as the chief explanation, particularly for the "cognitive" competencies, but also for social skills. Home mathematical and writing activities were also associated with differences, mainly in the cognitive competencies. But ECS experience, quality, and type were also shown to count, particularly for social, communicative, and motor skills and for perseverance competencies. Thus it is possible for ECS experience to temper the otherwise dominant influence of family background on children's competency levels.

In this concluding section, we discuss the reasons why home resources and ECS resources seem to have different effects on different competencies, why the considerable differences between family incomes was not associated with comparable differences in the quality of ECSs attended by children from well-resourced and poorly resourced homes in our study, and the implications of this research for policy makers, ECS practitioners, parents, and researchers.

The Interaction of Home and ECS Resources

The level of material resources available to children, and the level of parental knowledge and skill resources—which can be judged as dependent on their education and occupational experience—were echoed in the children's activities, their windows on the wider world (other than television), opportunities for interaction with others, and, to a lesser degree, parental approaches to assisting their children with problem-solving. Children from low-income homes had to make do with fewer experiences and resources than others.

But parents from the lowest-income families, and those with the least education (and there is considerable overlap of these 2 categories), were just as likely as others to want their children to receive as much education as they wanted, and to see home activities as playing a more dominant role in children's learning of the "3Rs". They were the group who were most likely to feel they had missed out on schooling themselves.

Thus it seems fair to assume that the fewer home resources, activities, experiences, and related lower levels of competencies which were already apparent for children of nearly 5 from families with low incomes and low parental education were not due to a negative valuation of education so much as to the affordability of such resources and activities, as well as knowledge and experience of them.

This conclusion is consistent with the lack of difference in children's competencies associated with differences in ethnicity, family type, or mother's employment status, and the lack of such marked differences in family activities and children's home activities related to such differences, with the exception of fewer sole-parent families having access to daily newspapers and a home computer.

The children's competencies most affected by lack of income and mother's education fell into both the "cognitive" and "communicative/social" factor groupings. Four of the 5 competencies most significantly associated with family income were also significantly associated with the cost of the child's ECS to the family, 3 with quality aspects of the child's current ECS, and 1 with both the child's initial and current ECS types.

Incomes and ECS Quality

Yet our material on children's ECS attendance showed that while low-cost ECS options were more likely to be used by children from low-income families, the quality of these ECSs was often higher or as high as ECSs which are more expensive for families to access. This leads to two hypotheses:

- First, that any increase in parental costs for the currently low-cost options of kindergarten and playcentre could limit the access of children from low-income homes to ECSs of a reasonable standard, either by these ECSs becoming unaffordable to such families, or by their cutting their own costs and standards to allow the children from these families continued access. These standards such as ECE qualifications, (a reasonable, if hardly well-paid) staff salary, and children to staff ratio are clearly associated with ECS quality.
- Second, since ECS quality is significantly associated with children's competency levels, any decrease in the quality of ECS attended by children from low-income families will simply widen the gap existing between them and other New Zealand children. These gaps are unlikely to be closed by school experience, but, on the contrary, stretched still further.

Shifting ECS costs to parents will create later social costs

Parental perceptions of quality, as well as ECS affordability and availability, also play a part in which ECS a child attends. Parents who chose the more costly ECS types in our study often thought they were buying good quality, yet our study did not find such a clear connection between cost to the parent and good quality, or between cost to parents and the level of children's competencies. If we are to improve the quality of New Zealand ECSs, and provide parents with a sounder basis for their choice of ECS for their children, then it is crucial that we provide parents with a better understanding of what constitutes quality in early childhood education.

Implications of the Research

This research has also pointed to differences in the roles of ECS and family resources. ECSs offer opportunities and activities to extend and enhance social skills, communication, motor skills, perseverance, and numerical skills. In a skilfully resourced and structured environment, children learn both from each other, and with each other. There seemed fewer opportunities in most of the study ECSs for the kind of one to one communication with adults which would extend language: a matter of group size and staff to children ratios. Literacy activities were not common in the ECSs. It seems possible that we may have seen ECSs showing more association with children's early literacy competencies had this been more of a feature—but it is equally possible that such an emphasis could also displace the activities and interactions which enhance children's social, communication, and perseverance skills.

Although home and ECS resources appear complementary in their relationship to children's competency levels at the age of near 5, it is difficult completely to segregate ECS resources from family resources. Children's ECS experience has direct associations with their competency levels. But it also has indirect associations through its contribution to family resources, by allowing parents to take paid employment. It is increasingly difficult for New Zealand families to manage financially and afford participation in the community on only one income. Just under three-fifths of the main caregivers in this study, some with younger children than our study child, were in paid employment. This would not be possible without affordable ECSs. Thus ECSs indirectly contribute to the family resources available to support and develop children's competencies within the home.

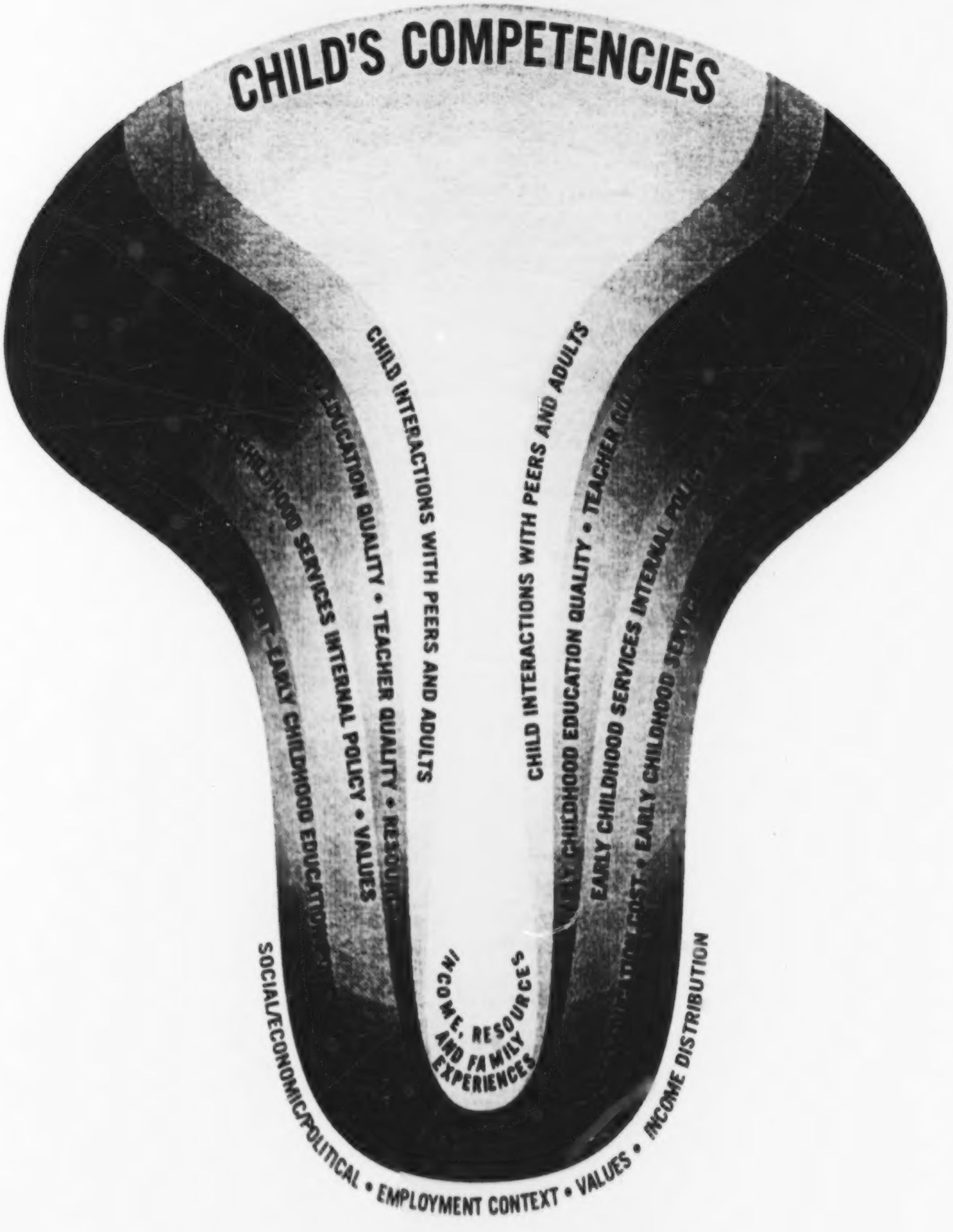
Our own and overseas research also suggest that the demarcation line between home and ECS resources—and effects—is also blurred because different kinds of parents choose different kinds of ECS. Indeed, before the more recent research showing that there is no consistent association between ECS quality and family income or educational levels, Melhuish concluded that—

> . . . both positive and negative effects for day care are to be expected as a function of the relationship between home care and day care, with no day care effects where there is approximate equivalence in quality of care in the settings. A corollary of this point is that the same day care may have different effects for different groups of children depending upon the relative quality of home care available. (Melhuish, 1991, p. 12)

This quotation suggests a concordance between home and ECS. If this is so, then the very existence of the significant associations found in this study between children's competencies and ECS quality, and duration of ECS experience, is striking. It indicates that the associations found here may well underestimate the weight of ECS contributions to children's competencies, and their ability to extend, temper, or mitigate the influence of family resources. Whether we can ever accurately measure this weight is, of course, unlikely. We can never completely isolate ECS experience—or "family life".

Our original model (*see* figure 1) of how children's competencies develop portrayed a temporal and mechanical process of inputs (family and ECS contexts) to the "black box" of ECS experience (parents as well as children), with separate outputs for children and parents. Our understanding of that process as it has been honed in the course of this research now suggests the following:

Figure 8
The Development of Children's Competencies


CHILD'S COMPETENCIES
CHILD INTERACTIONS WITH PEERS AND ADULTS
EDUCATION QUALITY • TEACHER QUALITY • RESOUR
CHILDHOOD SERVICES INTERNAL POLICY • VALUES
EARLY CHILDHOOD EDUCATION
CHILD INTERACTIONS WITH PEERS AND ADULTS
CHILDHOOD EDUCATION QUALITY • TEACHER QU
EARLY CHILDHOOD SERVICES INTERNAL POLI
COST • EARLY CHILDHOOD SERVI
INCOME, RESOURCES AND FAMILY EXPERIENCES
SOCIAL/ECONOMIC/POLITICAL • EMPLOYMENT CONTEXT • VALUES • INCOME DISTRIBUTION

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Family experiences provide the kernel of a child's experiences and consolidation as an individual. ECS experiences provide opportunities for interaction with others. Both family and ECS experiences are shaped and influenced by the resources available, and thus the educational and social policy environment.

This study confirms and consolidates earlier research showing the importance of ECE qualifications, and reasonable staff salaries to recognise the level of skill and knowledge needed to provide children with stimulating programmes as well as warm and secure relations with adults (Smith, 1995; Whitebook, Howes, & Phillips, 1989).

While the overall level of quality in our study ECSs appears to be higher than that found by Smith (1995) for New Zealand childcare centres serving infants and toddlers,[26] it was very low (60 percent or less over all, or an average of 3 or less for each item) for 24 percent of our ratings. No ECS achieved a very high quality rating (90 percent or more, or an average of 4.5 per item). This indicates that there is room for improvement. Different strategies are likely to prove effective in different ECS types, due to their distinct composition.

It is important to preserve children's ability to access ECSs of at least comparable quality, so that their chances to practise (some) competencies and develop others are not limited by low income, or by parental needs for full-day rather than sessional ECSs, or by parental perceptions of quality which do not match the reality. We have been fortunate in New Zealand to have had a policy environment which has supported quality in ECSs of low cost to parents by emphasising appropriate training, providing a regulatory environment which linked government funding to the meeting of (at least) minimal standards of provision, and government funding which has for the main part not taken the form of income-based subsidies. That policy approach has been attacked in recent years as undermining parental choice, and preventing the development of ECSs which meet parents' needs for full-day ECS. The results of this study warn against making parental choice,[27] parental ability to pay, or the provision of one particular kind of ECS the decisive voices in ECS policy.

While a larger sample of both children and ECSs would have made the job of analysis easier, the associations found are robust, and we are confident that larger samples, or replication of the research, perhaps within one ECS type only, would confirm the trends shown in this report, or, if major policy changes continue in the provision of ECSs in New Zealand, provide useful base-line data to assess any changes in ECS quality, children's access to ECS quality, and children's competencies over time.

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[26] It should be noted also for both studies that refusals to participate may have produced samples that include fewer poor-quality ECSs than could be found if a completely random sample were possible.

[27] Parental "choice" is important, but it can only operate where there are actual options realistically available, i.e., affordable.

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